

THE BOSTON SHOW L. E. Opdyke Ke

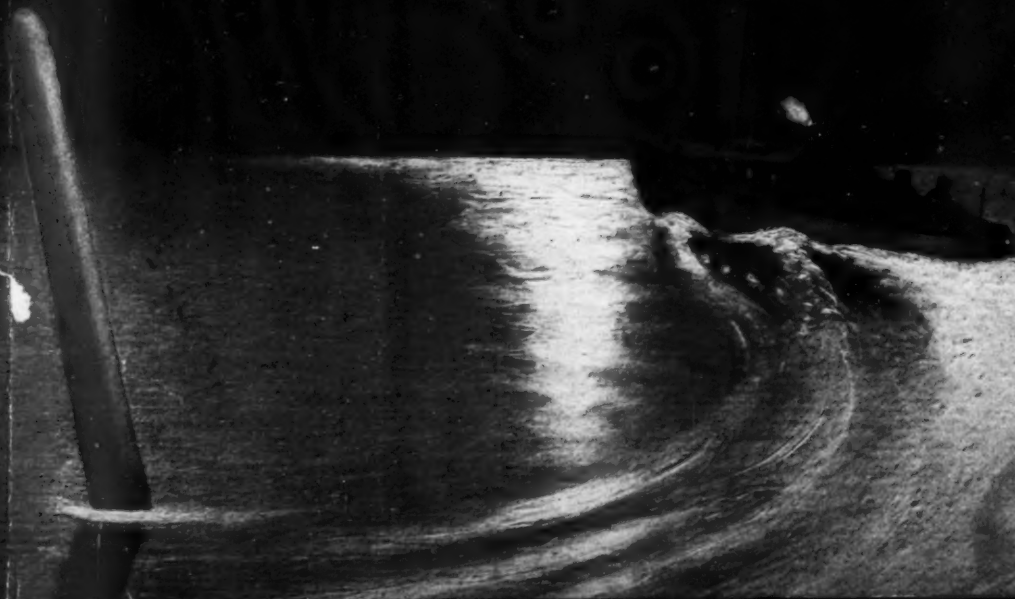
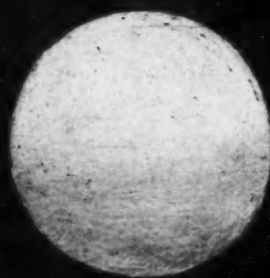
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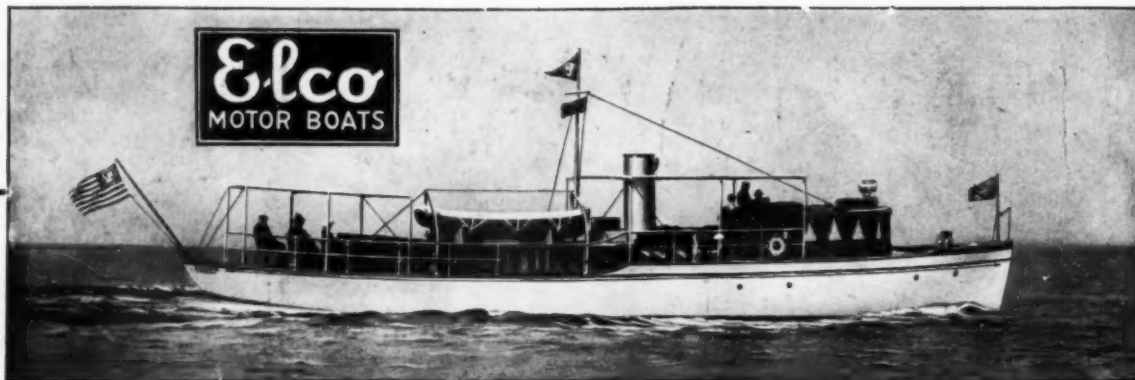
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172 Whiton Street, Jersey City, N. J., U. S. A.



Moonlight on the Kawartha Lakes, Ontario

Contents--February, 1910.

The Boston Show.

Boston Show, The.....	3
Exhibitors at the Boston Show.....	8
The Exhibits at the Boston Show.....	9

General.

"Did You Know it?".....	44
Federal Motor Boats in New York Harbor.....	33
Clubs, Among the.....	40
Dixie, Jr.—A New 22-Mile Runabout.....	21
Hydroplane, The Latest French..... Frontispiece	
Kalmia—A Twin Screw 76-Footer.....	18
Merrimac and Its Motor Boats, The.....	4
Motor Boat Navigation, Hints on—Part IX, Water, Wind and Weather Indications.....	41
Motor Boating Calendar.....	44
Motor Ice Boat, How to Build a.....	31
Motors for Motor Boats.....	43

National Motor Boat Legislation, Proposed.....	7
New Motor Boat Designs:	
57-Foot Raised Deck Cruiser.....	27
43-Foot Day Cruiser, A.....	23
Homer 27-Foot Cruiser.....	26
75-Foot Havana Racer.....	25
30-Foot Racer.....	25
Trunk Cabin Day Cruiser.....	22
New Things for Motor Boatmen.....	45-46
One Design Racers for 1,000 Islands.....	30
Our Naval Architects, Talks with, Charles D. Mower.....	17
Prize Contest in Questions and Answers.....	36
Emergency Rigs for Motor Boats.....	37
How to Make a Tool Locker.....	36
Steering Equipments for Motor Boats.....	38
Regarding Waterways Improvement. (Norfolk and Beaufort Canal).....	20
Specific Gravity of Woods.....	21
Yard and Shop.....	47

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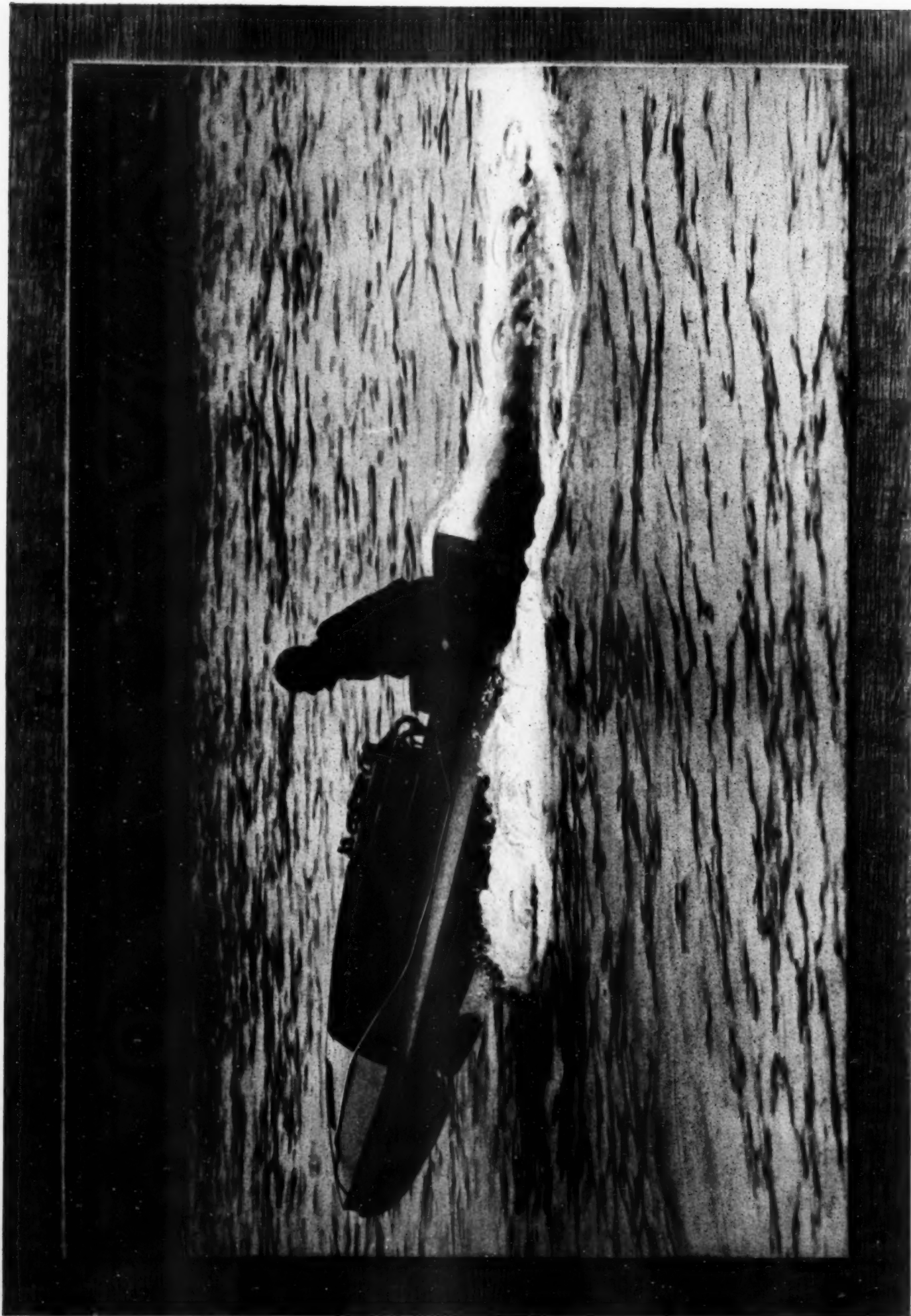
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This remarkable craft, which is approximately 20 ft. long and 4 ft. wide, is the latest French speed creation—the Barriquand and Marre hydroplane for which is claimed a speed of 46½ miles an hour. The drive is forward to the bow and thence through gearing to the long shaft at the stern. The hydroplane is shown in the photograph. The drive is forward to the bow and thence through gearing to the long shaft at the stern. The hydroplane is shown in the photograph. The drive is forward to the bow and thence through gearing to the long shaft at the stern.



The Boston Motor Boat Show.

The First of the Big National Exhibitions of Nineteen-Ten Showing the Developments in Boat and Engine Design and Accessory Manufacturing.

SHOW time is here—the time for which all motor boatmen wait in eager anticipation when once the lively interest in the outcome of the last race of the dying season has waned and become a memory. Show time is here, and with it come thoughts of things ahead, of things to be done when the grip of winter slackens and slips off, when spring arrives with the sound of the calking hammer, the smell of fresh bottom paint and the splash of the boat gone overboard.

Show time is the cocktail on the motorboatman's bill of fare. It whets the appetite for things that are to follow. It stirs up memories of pleasant things that were and makes the boatman keen for the better ones to come.

Boston this year starts the new season down the ways. The first of the big national motor boat shows of 1910, sanctioned by the National Association of Engine and Boat Manufacturers, is held in Mechanics' Building from January 22 to 29. Next of the big shows comes that in Madison Square Garden, New York, February 19 to 26, and then comes the Chicago show in the First Regiment Armory, March 26 to April 2. Other shows will be held in Detroit (February 28 to March 5), Buffalo (March 21 to 30), and in many other cities for which the dates have not yet been announced.

There are shows and there are exhibitions. The shorter, good, old domestic word, although used indiscriminately, means just simply a spectacle or display, while the Latin word exhibition has more the meaning of something put before the public for inspection, and this is the function of the exhibition of motor boats, engines and accessories in Mechanics' Hall.

The 1910 Boston show, the annual exhibition of the New England Engine and Boat Association, is the biggest thing of its kind ever held in that city. Each of the previous years has seen Mechanics' Hall filled to overflowing with exhibits and each year the committee in charge has, in some mysterious manner, increased the available floor space by several thousand square feet, in an effort to accommodate all. And even then there have been those who wished they had sent in their application for space sooner. This year the basement, street floor and balcony of the exhibition hall are utilized to the last square inch. Again this year the show is under the management of Chester I. Campbell who is well-known as a successful administrator of such exhibitions.

As heretofore the list of exhibitors includes practically all of the well-known firms producing motor boats, engines and accessories throughout the country, there being, however, a pronounced increase in the number of local exhibitors; in fact, out of the three hundred or thereabouts, on the list more than one-third are within their own vicinage. As is peculiar to Boston shows—that is, as is rather more characteristic of them perhaps than of those in New York—the exhibits of many of the leading builders of boats and engines are in charge of their Boston agents.

Of new things there are aplenty and they range from com-

fortable cruisers complete in every detail to improved spark plugs and igniter points. One or two companies who have hitherto confined their energies to turning out motors are showing a line of productions lengthened by the addition of a number of types of boats. Nearly every motor maker has improved his products by some detail refinement suggested by another season's strenuous use, and many have extended their lines by adding new models.

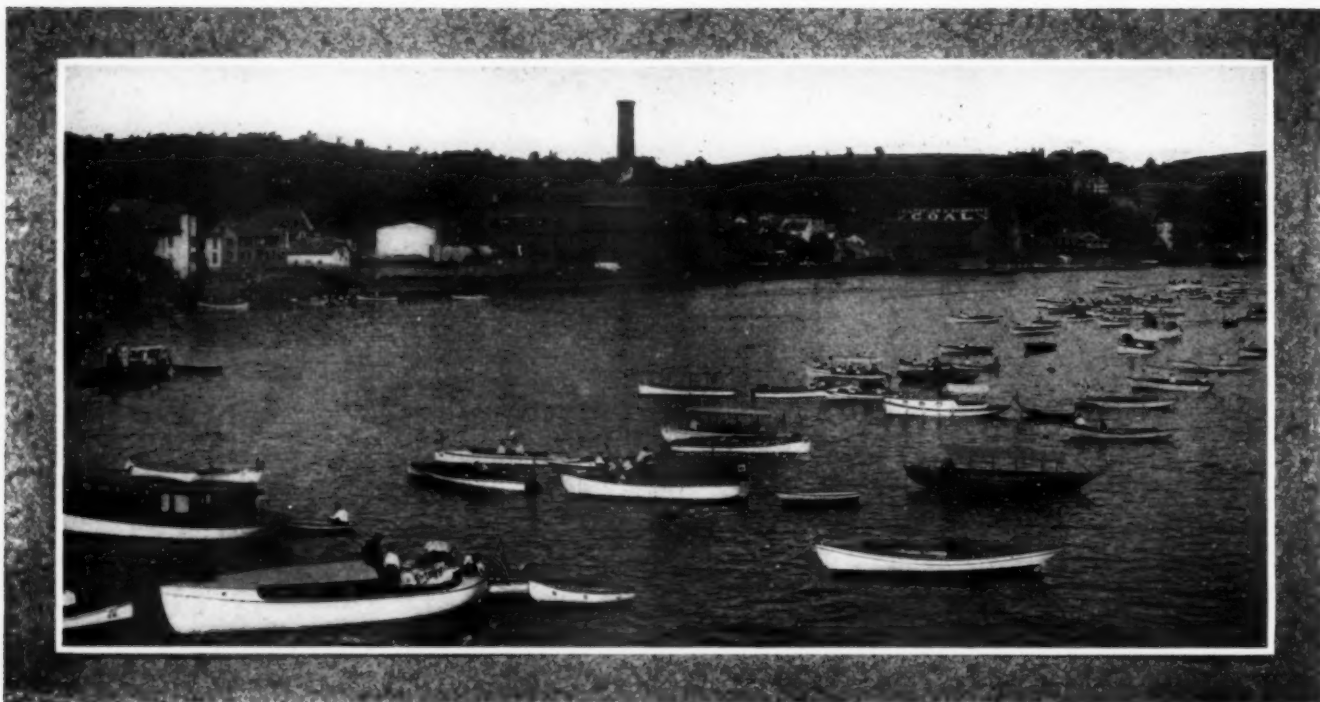
The boat builders seem to be favoring the policy of making at least one type of boat based more on the "one design" than on the stock model idea which led in popularity but a short time ago. In this class of boat we see, among others, the cruiser of 25 to 35 feet over all with six to nine feet beam, with single or double cabins, providing sleeping accommodations for four, six or eight, with ample locker and wardrobe space, with roomy cockpits and with four-cylinder motors of approximately 16 to 20 horse-power.

There is, too, the builder, who is designer and constructor as well, who shows the product of his draughting-room and shop, a product which in nearly every case is made to meet the special requirements of the purchaser. There is the builder of the runabout of stock design, the maker of the dory and of the motor canoe.

While the boatmen and the motor builders have been busy, the parts and accessory manufacturers have not been idle, and the results of their efforts to improve the lot of the man with the motor boat germ in his blood and to add to his comfort and happiness are evident on every hand. The accessories form an important part of the exhibition and there is a larger array than ever before of devices, many of them brought out during the past year and covering every possible need of the motor boat or whim of its owner; storage batteries, magnetos, switches, plugs, lighting systems and numerous other electrical devices, besides horns, steering gears, reversing mechanisms, speed propellers, stoves, mooring, *ad infinitum*.

Many of the exhibitors have arranged for elaborate and effective displays, one of them having a large lighthouse erected at his stand and so arranged that it flashes the street number of his salesroom at intervals and inside the tower is a ship's bell which strikes the hours in true nautical fashion. This is but one example of original decoration, many others could be cited. A feature of the show is the Dixie III, the remodeled defender of the Harmsworth trophy.

The real value of an exhibition, such as the Boston Motor Boat Show, lies in the fact that it shows as it is possible to do in no other way, just what is being done in the field of motor boat construction and all its allied branches. No amount of description and illustrations can compare in educational value with the inspection of the things themselves. The show brings the manufacturers and purchasers into closer relation and stimulates interest in the greatest and broadest of outdoor sports.



The Merrimac at Haverhill is fairly alive with motor boats.

The Merrimac and Its Motor Boats.

By Daniel N. Casey.

ITS waters turning spindles in a dozen cities, its banks alive with industry, its picturesqueness and beauty equaled by but few others, the Merrimac River, beginning a small stream in the woods of old New Hampshire, lightly roams upon its way to the sea, augmented by many tributary streams, so that when it reaches Haverhill it becomes navigable for tugs and pleasure steamers and is fairly bubbling over with power boats of all kinds from this point to Newburyport, near its mouth.

Mammoth pine trees rise majestically to the skies, dotting the shores, while on both banks, hills gradually recede until they seem to be obliterated by the horizon; and the sight of the many thrifty hamlets and large cities that lie alongside the stream give to it a life and zest most pleasing.

Flanked by sandy beaches on either side, the mouth of the river holds a welcome for the mariners who are tossed on the rough Atlantic and quaint Newburyport harbor is in waiting for the merchantmen who half a century ago regarded the sleepy city as an important commercial point. Guarded by life-saving stations and Plum Island Light, the sheltered river has many a time been sought as a refuge by hardy sailors in the hour of need.

It is no wonder, therefore, that with all these natural appurtenances, the river should be always bustling with power boats and that each year since the craft came into the limelight, more have been added and more interest is taken in affairs pertaining to the river and the boats upon it. The channel is six feet at mean tide, and an effort is being made to have it dredged, as many boatmen would like an eight foot channel.

The well-known Isles of Shoals, Grape Island, Ipswich Bluffs and other points of interest can be easily reached in motor boats and runs to these

places are frequent, while the river at all times of the day and night is fairly alive with motor craft of all kinds.

From Haverhill to the sea the trip is one that beggars description. After Haverhill bridge is passed the river widens somewhat, and it is not necessary to keep directly in the channel. On either side the banks are moss green with here and there a rocky place. The house of the Crescent Motor Boat Club on the left, teeming with boats of all kinds moored nearby, beckons to you to fill your gasoline tank or lie to for a while in the cool shade. Slipping down past the city, Groveland bridge is seen after putting the helm hard down to starboard. The Pines, a pleasure resort, lies on right, while on the other side are many summer cottages. The houses now become farther and farther apart and the stillness is broken only by the chugging of the engine.

West Newbury is the next town along the course, and soon with its high sand bank comes into view.

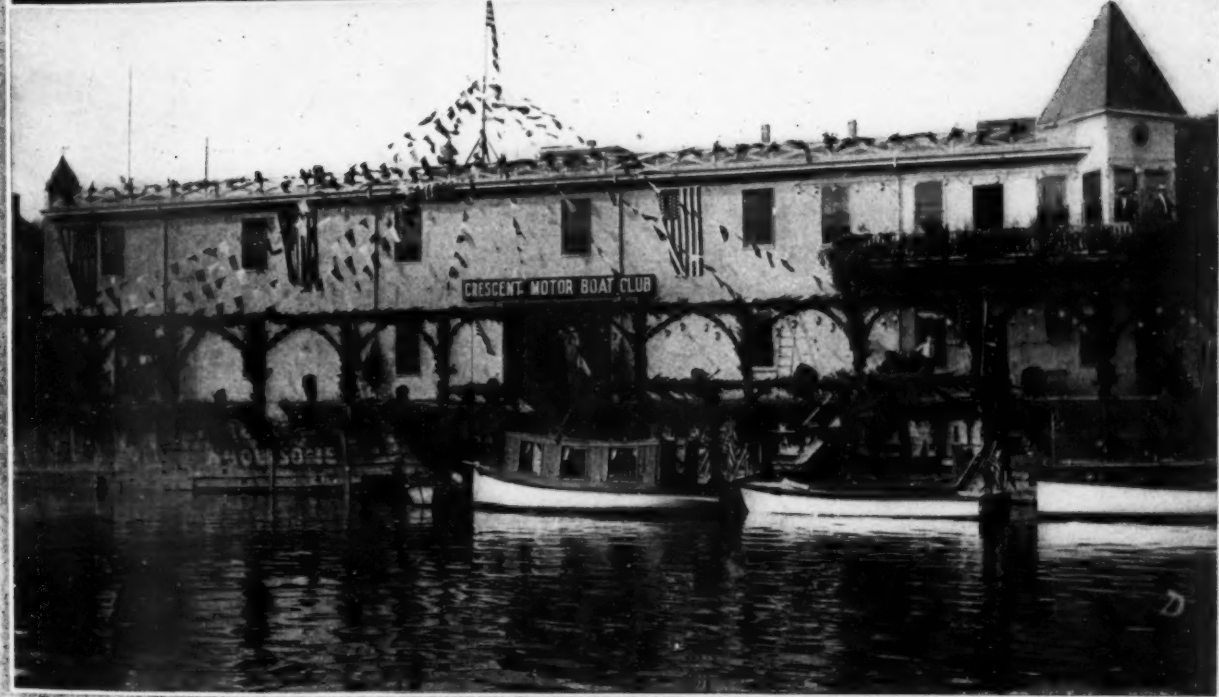
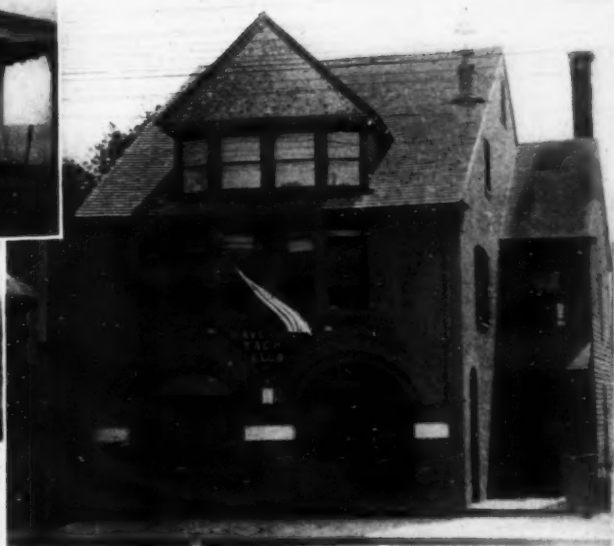
The old covered Rocks Bridge is a quaint reminder of times long past. Rocks protrude from the water prominently at this point and the steamers and tugs have to proceed with caution, but the motorboatman has little to fear.

After a run of several miles through beautiful scenery and past many ideal picnic grounds Merrimacport wharf and the

Amesbury suburbs change the nature of the banks, and once around the long promontory you can see Chain Bridge, the oldest suspension bridge in the country, wholly supported by chains and now undergoing repair. The channel now becomes quite wide and after passing under the two Newburyport bridges, you are in the harbor of Newburyport and soon out to where the innumerable cottages line the beaches on either side, extending as far as the eye can see. And out beyond the jetties



Record, Mr. L. R. Hovey's unique 25-footer.



Boat clubs along the Merrimac. Above, on left, American Yacht Club of Newburyport; on right, Haverhill Yacht Club; in center, North End Boat Club of Newburyport; below, Crescent Motor Boat Club of Haverhill.

lies the broad Atlantic. Rivalled only by the palisades of the Hudson, the Merrimac presents beauty and picturesqueness that has not been touched or developed by the hand of man. With its ever changing scenery and high rock cliffs that rise like precipices out of the surface of the water, flowing past cities humming with the tunes from their spindles and machines, then slipping quietly by sleepy villages, over falls

kind on the river. She was built by Fairfield Harris, of Haverhill, and is equipped with a 12 horse-power two-cylinder Gray engine.

The Atlantic Boat Building Company, of Amesbury, own two fast boats which were built at their plant. Nimrod, the larger, a fast 30-foot cruiser, equipped with a 15 horse-power Atlantic engine, competed in the Marblehead race last July and

covered the course in 32 hours 29 minutes and 30 seconds, which was next to the fastest time made.

The other boat, X. T. C., an open speed boat, 21 feet long, equipped with a 12 horse-power three-cylinder Atlantic, carried off the honors in the Crescent race at Haverhill last year.

Ellen and Atlantic, owned by Alexander Brown and J. J. Nealey respectively, of the American Yacht Club of Newburyport, are two fast craft and were also built by the above company.

One would have to travel far, indeed, to see more boats of varied types than can be viewed at any time in the open season on the placid waters of the Merrimac. From Haverhill to the mouth of the river at Newburyport, nearly 500 boats are always riding at anchor, and there are few of the

power class that can't give a good account of themselves.

With the advent of motor boating a few years ago, many of the old time yachts and boat clubs received a new lease of life, while a few new clubs were immediately formed.

The Crescent Motor Boat Club of Haverhill, while the youngest organization on the river, is one of the most active; it has a beautiful and commodious house, and since its formation, in 1906, it has annually conducted races on the river.

The Haverhill Yacht Club is the oldest one, the time of its incorporation dating back to February, 1874. This club has conducted cruises to Portland and other places on the rugged Maine coast, and their events on the river in the days of the sailing races brought contestants here from all the large cities. With the advent of motor boating, the club branched out into this line and has a large membership.

Amesbury has a club known as the Wonesquam Boat Club.



Helen and Dorothy is one of the most pretentious cruisers on the river.

where its water is utilized for power, rumbling around rocks and over sandy beds, the Merrimac has inspired many a poet and supplied him with a worthy theme.

Some of the fastest boats in this section of the country are owned along the Merrimac. Haverhill is the home of Redskin and H. Y. C., the fastest boats of their class in Massachusetts and New England respectively. Winning over a field of twenty starters and driven by her owner, Fred C. Beal, Jr., the 15-horse-power Redskin captured the Massachusetts Bay trophy at Beverly, July 28, 1909. Her time for eight knots was 34 minutes and 5 seconds. The race was held under previous performance rules, and the victor was three minutes ahead of the nearest competitor. Redskin, long, lanky, graceful in lines and pretty, is equipped with a four-cylinder, four-cycle motor and was designed by Louis Kenyon, whose name is well known along the St. Lawrence.

H. Y. C., owned and commanded by J. G. Hudson, of Haverhill, finished first in the third annual power boat regatta for the championship of New England, held by the New England Boat and Engine Association on the Charles River basin August 7th. She made 11 1/4 statute miles in 31 min. 4 secs. Slight trouble was encountered with the engine as the last lap was being made, but after a slight delay the remaining 3,000 feet were covered in record breaking time. Mr. Hudson now has the distinction of being the builder and owner of the fastest power boat in New England for her size and power. H. Y. C. is 35 feet over all and is equipped with an 80-90 horse-power engine, which develops in the vicinity of 100 horse-power on the brake test. She flies the flag of the Haverhill Yacht Club, while Redskin carries that of the Crescent Motor Boat Club, so that both the Haverhill organizations are well represented.

The 40-foot cruiser Helen and Dorothy of the Haverhill Yacht Club fleet, owned by Commodore John M. Sweatt, is one of the most pretentious boats on the river. She is thoroughly equipped for cruising and is propelled by a 24 horse-power motor. The Record, owned by Mr. L. R. Hovey, of the Crescent Motor Boat Club, is a unique craft. She is 25 feet long, of 7 feet 6 inches beam and 30 inches draft, and equipped with a cabin and pilot house, is the only boat of her



The 35-footer H. Y. C. is the holder of the New England championship.

also formed in the sailing days, and while the club has not done much since the inauguration of the gasoline-propelled boats, it still retains its name and reputation.

The North End Boat Club of Newburyport was organized in 1895 by some of the men who wished a suitable place to keep their boat gear. In 1907, the club was incorporated and then when the motor boats came into popularity, the membership increased rapidly and a beautiful club house has been built. This club is well known for its hospitality, for its latch

(Continued on page 48.)

National Motor Boat Legislation.

A Summary of the Provisions of the Humphrey Bill Now in the Hands of Congress.
The Arguments that are Advanced to Show Why It Should Not Become a Law.

AS was stated by Mr. Gambel, in his article in January MoToR BoatinG, a bill was introduced in the House of Representative last spring by Mr. Humphrey, of Washington, which has since been known as the Humphrey Bill, and which caused a great deal of discussion among motor boatmen. The bill, which is entitled "A Bill to Provide for the Greater Security of Life and Property on Navigable Waters, for the Inspection of Vessels and for Other Purposes," was referred to the Committee on the Merchant Marine and Fisheries, and ordered printed. We have been given to understand that it was later withdrawn from the committee by Mr. Humphrey and is now likely to be brought forward for a final vote at almost any time.

While the major portion of the bill is not to be criticized, there are some sections relating to motor boats which would seriously affect the owners of such craft, particularly those operating boats of the smaller size, and for the edification of those who are not acquainted with the contents of the bill we give below a short synopsis in so far as it affects motor boat owners:

Boats Affected.—All steam and motor vessels measuring 35 feet or more between perpendiculars are subject to inspection, as well as all steam and motor vessels carrying passengers for hire. From this section of the bill it would appear that all motor boats carrying passengers for hire, regardless of size, are subject to the same inspection as the larger boats.

Inspection of Vessels.—"When the inspection of a vessel is completed and the inspectors approve the vessel and her equipment throughout, the local inspectors shall make and subscribe a certificate to the collector or other chief officer of the customs of the district in which such inspection has been made in accordance with the form and regulation provided by the board of supervising inspectors * * * Upon such inspection and approval the inspectors shall also make and subscribe a temporary certificate, where necessary, which shall set forth substantially the fact of such certificate and approval. * * * The said certificate shall be carried and exposed the same as is provided for copies of the regular certificate. * * * No vessel required to be inspected under the provisions of this act shall be navigated without an unexpired regular certificate of inspection or a temporary certificate." The vessel is liable to a penalty of \$100 for each violation of this section.

Equipment.—Every vessel subject to inspection navigating the ocean, or any lake, bay, or sound of the United States, must be provided with lifeboats, rafts, self-igniting water lights, line-carrying projectiles, with means for propelling them, drags and pumps. Boat launching apparatus must be provided for the life-boats so that they may be ready for use inside of two minutes. Vessels carrying passengers for hire and in a service which takes them more than forty miles off shore shall be equipped with wireless telegraph and a competent operator for same. Every vessel subject to inspection, navigating rivers only, must have at least one substantial lifeboat of good dimensions, with lines, oars, etc., attached, and kept in good condition at all times and ready for use. In addition to this, every such vessel carrying passengers for hire shall have one or more metallic lifeboats of size prescribed by the inspectors.

Life Preservers.—Every vessel carrying passengers, whether or not subject to inspection, must carry at all times one life preserver for each person on board.

Fire Protection.—This is provided for at the discretion of the inspectors and is governed by the size and uses of the boat.

Licensing and Classifying Officers.—Masters, mates, engineers and pilots of vessels subject to inspection must be licensed by the examining boards, under a penalty of \$100 for each offense of operating a vessel without such license.

Complement of Officers and Crew.—No vessel subject to inspection shall be operated unless she shall have in service and on board such complement of licensed officers and such crew as may, in the estimation of the local inspectors, be necessary for her safe navigation. No steam or motor vessel carrying passengers for hire shall be operated unless she shall have in service and on board at least one licensed pilot and one licensed engineer, except that in open boats measuring less

than 35 feet between perpendiculars, one person, if duly qualified, may act as both pilot and engineer.

There have never been satisfactory laws regarding motor boats, and heretofore there was no distinction made in the requirements between the largest steam vessel and the smallest motor craft. Under a strict interpretation of the existing law, "any craft propelled by machinery," which of course includes motor boats, is governed by the same regulations, but since vessels propelled by gasoline engines have come into use since these laws were passed it has been the custom to regard the regulations less rigidly in connection with the smaller power boats. It is gratifying to note that the new bill will differentiate the classes of vessels to a certain extent, and most of the Humphrey Bill is to be commended. There are those who oppose the new bill, however, since it seems that some of the new features are based upon insufficient information in regard to the needs of legislation in certain quarters.

Much of the opposition is based upon the fact that under this bill about 25,000 motor boats, most of them small, would be subject to inspection annually. This would require the services of a government inspector of hulls and another government inspector of machinery. This in turn necessitates the annual issue of certificates in triplicate by the collector of customs, the annual federal determination of the officers and crew, and a daily statement of the number of passengers carried. It is argued by those opposed to this measure that there should be a passage in the bill favoring the smaller motor boats even if they do carry passengers for hire, since it is in many cases impractical for the smaller boats to be equipped with "at least one substantial life-boat."

The fastest racing boats in the country are those of from 35 to 50 or more feet in length, and with such craft as the famous Dixie, or the Standard, open boats of high power, it would be very difficult to live up to the letter of the law, especially with regard to the carrying of life boats at all times. It is doubtful if any motor boat owner will dispute the fact that the safety of his passengers should be provided for or that it is the part of wisdom to carry life preservers, fire extinguishers and the like, but it seems to many that it is not wise to embody in a bill any requirements that can be complied with only with great difficulty.

To state the matter briefly, there seems to be no provision in the bill that permits the employment of any different federal machinery in the case of the smallest motor boat from that in use for the largest steamer. Such laws could not be made effective without a national water police force of considerable size in addition to a greatly enlarged inspection force to take care of the constantly increasing number of motor boats in this country.

There are at present 46 local boards of inspectors distributed through the United States, who examine yearly about 3,500 applicants for license as officers of steam vessels, and there has been no complaint of this method. The present bill, however, places in the same class for applying for licenses, applicants for masters, mates, engineers and pilots of the small commercial motor boats, at the rate of about 7,000 per year. It does not seem necessary, according to the ideas of many of the prominent motor boatmen in the country, for retired naval officers and captains and engineers of the large ocean steamships, to examine masters of the smallest motor boats to see if they know enough about the subject to carry passengers for hire. It is not the idea of the opposers of the bill that regulations in this regard should be lax, but since the annual number of applications for licenses will be increased by over 7,000 when the new class is brought into the field, and the new bill provides for but eight examining boards instead of 46, it does not seem as though the work could be properly done. It is thought that the local inspectors, whose force is greatly increased, could do the work as well and more quickly.

To summarize the whole matter, while new legislation is needed for motor boats, the chief argument against the bill is that the classes should be more differentiated so that small boat owners will not be called upon to comply with some of the regulations which would seem to be made primarily for vessels of larger size.



Exhibitors ^{at} the Boston Motor Boat Show.



Adams, J. O. Boston, Mass.
American Ever Ready Co. New York City.
American Marine Equipment Co. Boston, Mass.
Atlantic Company Amesbury, Mass.
Atlantic Maritime Co. Boston, Mass.

Bath Marine Const. Co. Bath, Maine.
Binney, Arthur Boston, Mass.
Borne, Scrymser Co. Boston, Mass.
Boston Engineering Co. Boston, Mass.
Boston Searchlight Co. Boston, Mass.
Breeze Carbureter Co. Newark, N. J.
Broadhead Co., W. H. Charlestown, Mass.
Brown Gas Engine Co. Syracuse, N. Y.
Brown-Talbot Co. Salem, Mass.
Buffalo Gasoline Motor Co. Boston, Mass.
Burn-Boston Battery Co. Boston, Mass.
Byrne-Kingston Co. Kokomo, Ind.

Caille Perfection Motor Co. Detroit, Mich.
Camden Anchor-Rockland Mach. Co. Camden, Me.
Cape Cod Power Dory Co. Wareham, Mass.
Chandler & Farquhar Co. Boston, Mass.
Cleveland Auto Boat Co. Cleveland, Ohio.
Colton Combination Tool Co. Chester, Vt.
Connell, W. J. Boston, Mass.
Consolidated Motor Co. Bridgeport, Conn.
Cooley Mfg. Co. Boston, Mass.

De Mooy Engine Co. Cleveland, Ohio.
Dean Mfg. Co. Newport, Ky.

Edmunds & Jones Mfg. Co. Detroit, Mich.
Elbridge Electric Co. Elbridge, N. Y.
Electric Goods Mfg. Co. Canton, Mass.
Electric Launch Co. Bayonne, N. J.
Eisner Co., Harry. Boston, Mass.
Emery, V. J. Lynn, Mass.
Essex Engine Co. Lynn, Mass.
Evans Stamping & Plating Co. Taunton, Mass.

Fairbanks Co., The. Boston, Mass.
Fairbanks, Morse Co. New York City.
Ferro Machine and Foundry Co. Cleveland, Ohio.
Forbes, W. J. Boston, Mass.
Fowler Lamp Mfg. Co. Chicago, Ill.
Fox Reversible Gasoline Eng. Co. New York, N. Y.
Frisbie-Heft Motor Co. Middletown, Conn.
Fulton Engine Co. Erie, Pa.

Gray-Hawley Mfg. Co. Detroit, Mich.
Gray Motor Co. Boston, Mass.

Harriman Engine Co. Boston, Mass.
Havoline Oil Co. Boston, Mass.
Hendricks Novelty Co. Indianapolis, Ind.
Hercules Electric Co. Indianapolis, Ind.
Herz & Co. New York City.
Hilton Mfg. Co. Boston, Mass.
Holtzer-Cabot Elec. Co. Brookline, Mass.
Homer, A. P. Boston, Mass.
Houle Motor Works, A. J. Holyoke, Mass.
Hoyt Elec. Instrument Co. Penacook, N. H.
Hyde Windlass Co. Bath, Maine.

Ideal Gas Engine Co. Wollaston, Mass.
Jager, Charles J. Boston, Mass.
Johnson Co., Iver. Boston, Mass.
Jones, C. M. Toledo, Ohio.

K. W. Ignition Co. Cleveland, Ohio.
Kershaw-Williams Co. Boston, Mass.
Kinney Mfg. Co. Boston, Mass.



Waltham Boat & Canoe Co. Waltham, Mass.
Waterhouse Co., The. Boston, Mass.
Waterman Marine Motor Co. Detroit, Mich.
Watkins Motor Co. Cincinnati, Ohio.
Watres Mfg. Co. New York City.
Westchester Appliance Co. Boston, Mass.
Wheeler & Shebler Co. Indianapolis, Ind.
White Co., E. M. Old Town, Me.
Witte Iron Co. Kansas City, Mo.
Willard Storage Battery Co. Cleveland, Ohio.
Willowcraft Shops. Cambridge, Mass.
Wolverine Motor Works. Bridgeport, Conn.

Knox Engine Co. Rockland, Me.
Kokomo Electric Co. Kokomo, Ind.
Koven, L. O. & Bro. New York City.
Lackawanna Mfg. Co. Newburg, N. Y.
Lamb Engine Co. New York City.
Lawley, Geo. & Son Corp. So. Boston, Mass.
Lovell-McConnell Mfg. Co. Newark, N. J.
Lunt-Mess Co. Boston, Mass.

MacRae, Hector. Baltimore, Md.
McClellan, Charles P. Fall River, Mass.
McLaughlin Mfg. Co., G. G. Boston, Mass.
Manhattan Elec. Supply Co. of New York. New York City.
Manhattan Oil Co. New York City.
Mianus Motor Works. Boston, Mass.
Monitor Mfg. Co. Boston, Mass.
Moore, C. F. Boston, Mass.
Morris Canoe Co. Old Town, Maine.
Morss Co., The A. S. Boston, Mass.
Motsinger Device Mfg. Co. Pendleton, Ind.
Murray & Tregurtha. So. Boston, Mass.

National Carbon Co. Cleveland, Ohio.
Nugett Polish Co. New York City.

Olds Gas Power Co. Boston, Mass.
Orswell Igniter Co. Boston, Mass.
Oulton Motor & Mfg. Co. Boston, Mass.

Palmer Bros. Boston, Mass.
Parker, G. R. Boston, Mass.
Pittsfield Spark Coil Co. Dalton, Mass.
Premier Motor Car Co. Boston, Mass.
Progressive Mfg. Co. Torrington, Conn.

Racine Boat Mfg. Co. Muskegon, Mich.
Regal Gasoline Engine Co. Coldwater, Mich.
Rice Bros. Co. East Boothbay, Me.
Richardson Engineering Co. Hartford, Conn.
Roper, C. F. & Co. Hopedale, Mass.
Russell, T. F. Boston, Mass.

St. Josephs Motor Co. St. Joseph, Mich.
Sagamore Engine Co. Lynn, Mass.
Sherwood Mfg. Co. Buffalo, N. Y.
Siro Carbureter Co. Springfield, Mass.
Smith, W. J. New Haven, Conn.
Snow & Petrelli Mfg. Co. New Haven, Conn.
Stackpole Battery Co. St. Marys, Penna.
Standard Motor Const. Co. Jersey City, N. J.
Stanley Co., The. Boston, Mass.
Stanley & Patterson. Boston, Mass.
Sterling Engine Co. Buffalo, N. Y.
Sterling Hardware Co. New York City.
Stuart-Howland Co. Boston, Mass.
Syracuse Gas Engine Co. Syracuse, N. Y.

Teel Mfg. Co. Medford, Mass.
Termaat & Monahan Engine Co. Oshkosh, Wis.
Therman, Eugene M. Lexington, Mass.
Thermax Silencer Co. Boston, Mass.
Thomas & Co., W. E. New York City.
Thrall Motor Co. Detroit, Mich.
Toppan Boat Co. Boston, Mass.
Trimount Rotary Power Co. Boston, Mass.
True, A. R. Amesbury, Mass.
Truscott Boat Mfg. Co. Boston, Mass.
Trenton Engine Co. Trenton, N. J.
Tuttle Co., D. M. Canastota, N. Y.

Valentine & Co. Boston, Mass.
Vivax Storage Battery Co. Chicago, Ill.



What Is to be Seen at the Boston Show.

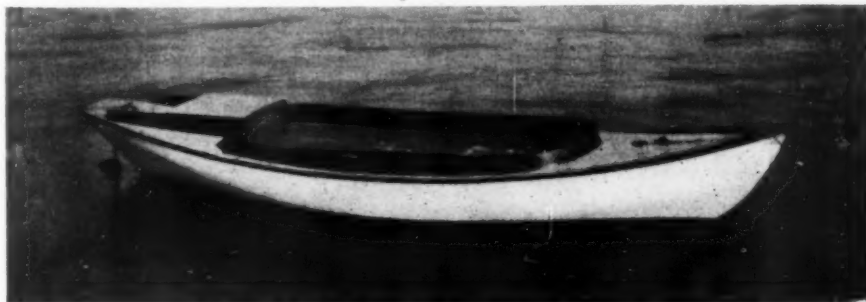
[On the following pages—9 to 16 inclusive—appear descriptions of exhibits at the Boston Show and illustrations of new boats, motors and accessories which are to be seen in Mechanics' Hall during the week of the show. On the opposite page is the list of exhibitors, as complete as it is possible to have it, for there are always changes in and additions to such a list up to the hour when the doors open. We shall supplement this forecast with material gathered at the show, and our readers will find in either this or the next following issue descriptions of all the new things which the first motor boat exhibition of the year disclosed.—The Editor.]

The Electric Launch Company, Bayonne, N. J. This company will exhibit through the American Marine Equipment Company of 27 Haverhill Street, Boston, their agents for the vicinity, one of their 26-foot Elco Express launches illustrated on page 16. The craft is designed solely as a fast pleasure boat offering the combination of speed, comfort and safety, accommodating six or eight people and attaining a guaranteed speed of 18 miles an hour. The construction is of white oak, planked with Southern cedar of a finished thickness of half an inch and copper riveted throughout. The power plant is a 4-cylinder, 40 horsepower engine located forward. Ample protection is given the motor by a hinged metal hood which may be quickly removed to give access to the power plant. The cylinder dimensions are 5-in. bore by 3¼-in. stroke. The levers controlling the ignition and throttle of the motor are mounted on the bulkhead separating the cockpit from the engine compartment and are directly in front of the steersman.

George Lawley & Son Corporation, South Boston, Mass. This corporation have in their exhibit a number of famous boats, the best known of which is probably the Dixie III, which was built last year and which won the Gold Cup races held by the American Power

Truscott Boat Mfg. Company, St. Joseph, Mich. This company will exhibit a new 22½ foot runabout, their standard 21-foot compromised stern, open launch, a new 28-foot runabout, a 35x9-foot raised deck cruiser and a

supported in a horizontal position and used as a table. Nothing but the best native material is employed in their construction, worked up by skilled labor. In addition to these standard types, this firm is also in a position to build



20-Foot smooth plank dory of the Cape Cod Power Dory Co.

complete line of their 2 and 4-cycle motors. This company is probably best known for its standard open launch which has been on the market for a good many years and this boat needs no illustration. An illustration of the 28-footer is shown herewith and gives a good

any type or grade of boat from 15 to 60 feet and will submit plans and specifications on request.

Arthur P. Homer, 88 Broad Street, Boston, Mass. Sterling, New Eagle and Waterman engines are shown in space 65, 66, 67, 73 and 74, while the Waterman speed boat is also exhibited in connection with the line of engines of the same make. In addition to the foregoing, a complete range of powers being staged in the case of each of the different makes of engines, Mr. Homer is also exhibiting the special 27-foot Homer cruiser in spaces 232 and 233, as well as a 24-foot, 20-mile speed boat, and a particularly attractive type of power yacht tender. There are a number of novel features embodied in the plan of all three complete boats shown in this exhibit which will doubtless merit the favorable attention of many seekers after boats for the coming season.

The Cape Cod Power Dory Company, Wareham, Mass. The exhibit of this company will consist of a new model 20-foot smooth plank dory, the principal feature of which is the fact that it does not settle at the stern when under way although the motor is in the extreme after end. The motor furnished is either a 3-h.p. Palmer, selling for \$250 or a 4-h.p. Ferro, selling at \$270. Both of these motors are make-and-break spark and are fully guaranteed. One of these dories recently won the New England Championship race at the Charles River basin. These boats have a beam of 5 feet 6 inches and a draft of about 21 inches, making an average speed of about 7 to 7½ miles an hour. The planking of these boats is of cedar, and the frame and keel of oak.



28-Foot Truscott runabout.

Boat Association at the Thousand Islands last August. This is the successor of the famous Dixie II, which brought to this country the Harmsworth Trophy from Southampton in the summer of 1907. Another well-known boat exhibited by this firm is the 50-foot mahogany launch Savallo, built last winter for a Philadelphia party.

idea of its general appearance. The cabin cruiser also illustrated, is built after the popular design. It is constructed of white oak, planked with cedar and cypress, the finish of the cabin, cockpit sides, etc., being in mahogany. The forward cabin affords comfortable sleeping accommodation for two with toilet facilities, and the after cabin while designed for the living quarters, can, when occasion demands, accommodate four more persons comfortably. The galley is completely equipped with all necessary features and there are several commodious lockers.

Camden Anchor-Rockland Machine Co., Camden, Me. In addition to their line of yawl dory launches in 19, 22, 25, 28 and 30-foot over all lengths, this concern is also showing a standard 1910 hunting cabin cruiser. This has as its foundation one of their standard 25-foot launch models, but in its conversion to a cruising type, which has been cleverly worked out, a very neat and convenient cabin plan has been evolved. Instead of having the engine open right in the cabin, it is entirely housed in, nothing but the flywheel projecting. This is also protected by a hinged lid, which may be raised vertically out of the way, in order to start. When desired, this lid may also be



Bow view of 35-foot Truscott raised deck cruiser.



25-Foot hunting cabin launch of Camden Anchor-Rockland Machine Co.

The Atlantic Company, Amesbury, Mass. The exhibit of this company will comprise a full line of their 18½, 20½, 23½, and 25½-foot sea-going Gurnet dories, and 25 and 30-foot Clipper launches. All of these models will be equipped with the Atlantic and the Atlantic special motors of from 3 to 15 h.p., with submerged exhaust and equipped with the Atlantic spray hood. A feature of their exhibition will be a partly finished dory hull, so arranged that prospective purchasers can see the method of construction and the grade of material used in planking and frames before being covered with paint. Orders will be accepted by this company only for a limited number of boats and a guaranteed delivery day is furnished to each customer. The pho-



A pair of K-W dory launches, 20 and 25 feet long.

tograph shows a small dory equipped with a 3-h.p. motor and accommodating 10 passengers.

E. M. White & Company, Oldtown, Maine. This well known concern will exhibit a line of their White motor canoes. These canoes are constructed of cedar, both ribs and planking, and covered with canvas and finished with spruce gunwales, white ash or oak stems and thwarts and with brass bang plates. The seams of the planking are beveled and lapped, making a smooth watertight hull even before the canvas is put on. Equipped with sponsons, either visible or invisible, it is almost impossible to capsize these little boats, and even in this event there is buoyancy enough to sustain the crew.

Standard Motor Construction Company, Jersey City, N. J. The Standard engines are too well known by motor boatmen throughout the country to require any extended description. Their exhibit at the show will include a number of engines of various styles and sizes taken from their extensive line.

Monitor Mfg. Co., Boston, Mass. Besides a complete line of ignition apparatus this company will exhibit their Waterhouse carbureter. This device, which is a development of the puddle type, is assembled on a single central spindle, and all air and fuel passages are concentric with the axis of the float chamber.

Bath Marine Construction Company, Bath, Maine. Shown herewith are the plans



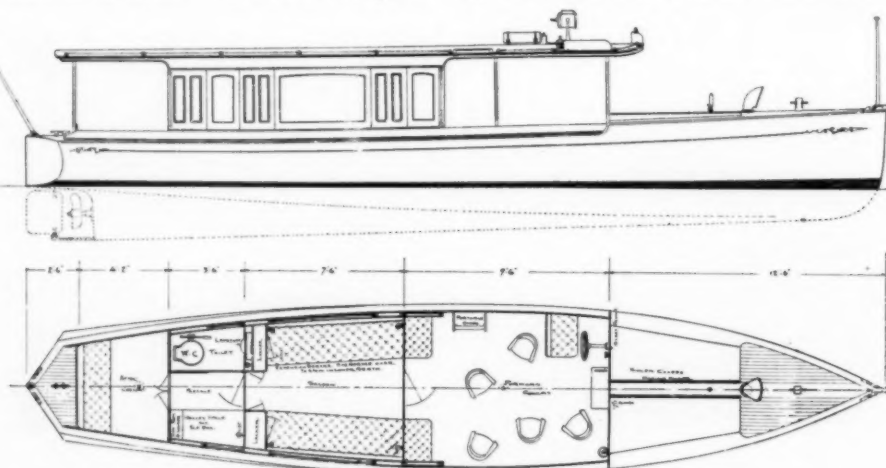
A Racine 15-foot special

of the 40-ft. semi-speed cruiser which will be exhibited by this company. The design of this boat is unique. The six-cylinder four-cycle 60 horse-power engine is placed forward under the dock. There are two cockpits, one forward and one aft and both sheltered by extensions of the cabin roof. The cabin is of

extending the full width of the boat, and contains two emergency berths over the main berths. Aft of this there is a three and one-half foot passageway between the galley and lavatory which leads to the after cockpit. This is 4½ ft. in length and is provided with a seat across the after end. The makers guarantee the boat to develop a speed of 16 miles an hour.

Kershaw-Williams Company, 77 Haverhill Street, Boston, Mass. Besides the exhibits of the Orswell Igniter Company, consisting of dynamos, magnetos, etc., the Willard Storage Battery Company, E. M. White & Company, Oldtown, Maine, consisting of several canoes, one equipped with a 1½ horsepower K. W. special motor, this company will exhibit a full line of their boats as follows: A 25-foot K. W. Dory launch with 10 horsepower K. W. special motor; a 20-foot K. W. Dory launch with 5 horsepower K. W. special motor, a 25-foot K. W. launch with 9 horsepower K. W. special motor, a 12-foot bright cedar power tender with 1½ horsepower K. W. motor and several other tenders. The illustration herewith shows a pair of K. W. Dory launches. The one on the left of the picture is 20 feet 6 inches by 5 feet 8 inches, and the other, 25 feet 6 inches by 6 feet 6 inches.

Iver Johnson Sporting Goods Company, 155 Washington Street, Boston, Mass. The



The 40-foot Semi-speed Cruiser exhibited by the Bath Marine Construction Co.

9½ ft. in length and contains sufficient space for a number of chairs besides the stationary locker seats. The saloon is 7½ feet long

Iver Johnson Company will exhibit besides a number of accessories, a complete line of boats of all sizes. There will be a 36-foot raised deck cruiser equipped with a 25 horsepower, 4-cylinder, 4-cycle Victor engine, and thoroughly equipped for cruising. There will be a 25-foot speed launch canvas covered, and equipped with a 25-horsepower, 4-cylinder, 4-cycle Low Victor Marine Engine with aluminum base and magneto. This boat has a guaranteed speed of 22 miles per hour. Besides those and a number of rowboats and canoes of various styles and sizes, there will be on exhibition a 16-foot family launch with compromised stern and equipped with a 2 horsepower, 3-port 1910 motor, Schebler carbureter, reversible propeller, bilgewater ejector, and complete equipment of battery tools, etc.

Toppan Boat Mfg. Co., 25 Haverhill St., Boston, Mass. These well known dory manufacturers will exhibit a full line of their motor propelled craft which are made in the following stock sizes: 18, 20, 22, 26, and 30 feet; 35 and 40 foot boats can also be supplied on order and any of the above can be



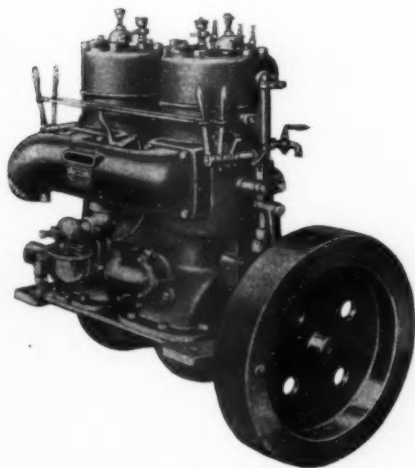
A Gurnet dory of the Atlantic Co.



The new Toppan knocked down dory ready for shipment.

either smooth planked or lapped straked. The safety launches which lately have been added to the output of this company are a rough water proposition similar to the Dory, but for those wanting a finer finished craft than the former. They are made in the same sizes as the Dory, but have a trifle more beam. All the models for 1910 while similar to those of last year, will be improved and refined in their minor details. The special \$150 fishing Dory is another very popular boat produced by this company and their folding spray hood is a valuable addition to any boat for use in rough water.

Waterman Marine Motor Company, 15 Fort Street, West, Detroit, Mich. This company has lately put on the market what is known as the Waterman Special speed canoe built by one of the leading canoe manufacturers along speed lines, but with the regular canoe construction, and designed especially for the Waterman model K motor. The boat is 20 feet long, with $3\frac{1}{2}$ feet beam and may be equipped as desired with a one, two, three or four-cylinder motor, or with two three-cylinder motors and twin screws. These lines include besides the above motors and Porto motor, a line of standard models from 1 to 30 hp.

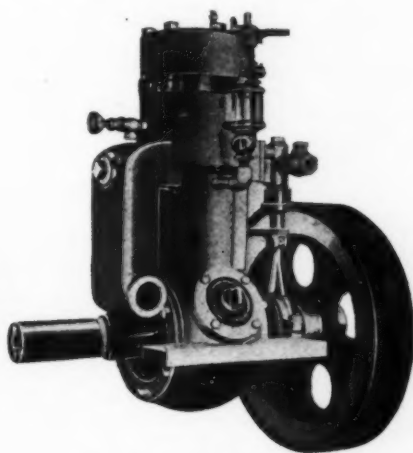


A two-cylinder Stanley.

The Stanley Company, 79 Milk Street, Boston, Mass. In the design of the Stanley Marine Motors which constitute the product of this firm, a number of novel features are embodied which make them particularly adapt-

able to the rough and ready service usually to be met with in open boats. The line for 1910 consists of six different powers, viz, $2\frac{1}{2}$; 5 and 7-horsepower in the single type, and $5\frac{1}{2}$, 10 and 15-horsepower in the 2-cylinder type.

Particular attention has been devoted to making the ignition system, not alone as reliable as possible, but likewise as accessible. Experience has demonstrated that the make-and-break igniters used on the Stanley motors

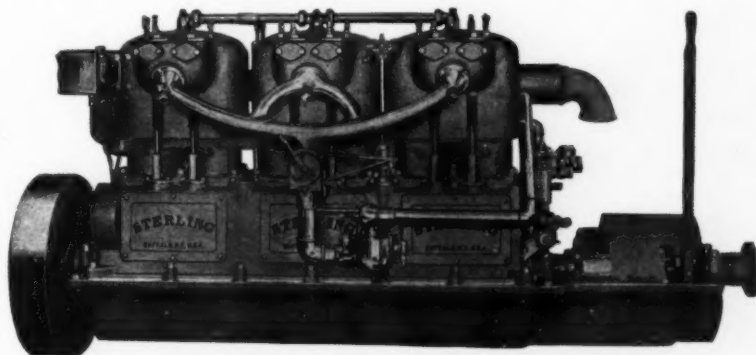


The single-cylinder Cooley.

represent a high development of this device for marine use, and their regularity in service under adverse conditions has done much to give the motor its high standing among motor boat owners.

Cooley Mfg. Co., Waterbury, Vt. The cut shown herewith illustrates one of the most popular models shown by this company in their exhibit. These engines are made with both detachable and integral cylinder heads on the sizes larger than 5 horsepower in both single and multiple cylinder designs. The engines are equipped with either make-and-break or jump-spark ignition, as desired. The principal feature of the motors is the accessibility to internal working parts. This is accomplished by means of handhole covers on each side of the crank chamber, $4\frac{1}{2}$ inches in diameter and threaded into the base. By the use of these threads it is not necessary to employ packing or bolts of any kind in order to secure a tight joint.

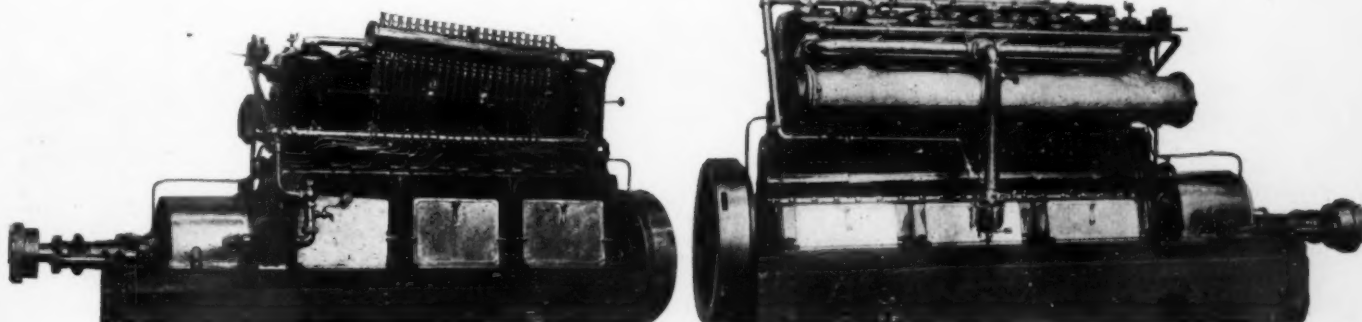
Sterling Engine Co., Buffalo, N. Y. This company is showing one of the most complete



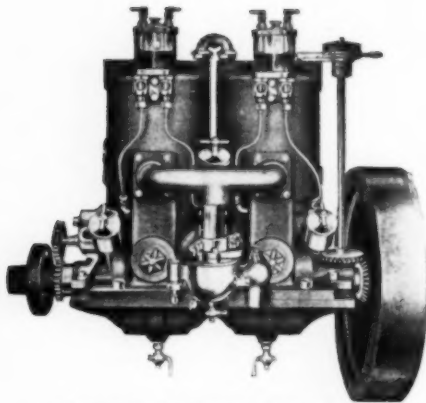
A six-cylinder representative of the Sterling line.

lines of high-powered marine engines exhibited at the show. Their line comprises three distinct models. Model B in 18-25 horsepower, 30-45 horsepower, and 45-65 horsepower, which are the Sterling heavy duty and speed engines; the model C, 8 and 12-horsepower, and the model D, 18 and 60-horsepower, the latter the special heavy duty type. Model B engines are designed for fast cruisers, runabouts and racing boats, though equally efficient for either pleasure or working craft. They are equipped with an automatic oiling system, positive cooling circulation, water jacketed exhaust, and are mounted on either cast iron or cast aluminum crankcases. All parts are made readily accessible and their simplicity and neatness of design is their strongest recommendation. These advantages are equally in evidence throughout the entire Sterling line of motors, for that matter.

The Fairbanks Company, 34-44 Pearl St., Boston, Mass. On the following page is illustrated the double cylinder Victor engine which is one model of the Victor line that The Fairbanks Company will exhibit at the Boston Show. The Victor engines are strongly constructed and well balanced in every detail, and are designed for heavy duty service in working boats, developing their horsepower on comparatively slow speed. The single cylinder Victors are built in the following sizes: $1\frac{1}{2}$, 3, 4, 5, 7 and 10 horsepower, and the double cylinder type in 9, 11, and 15 horsepower. The latter type are provided with water jacketed exhaust manifold, band plates



Two views of the Type L, 6-cylinder 50 h. p. Jager motor with equipment.



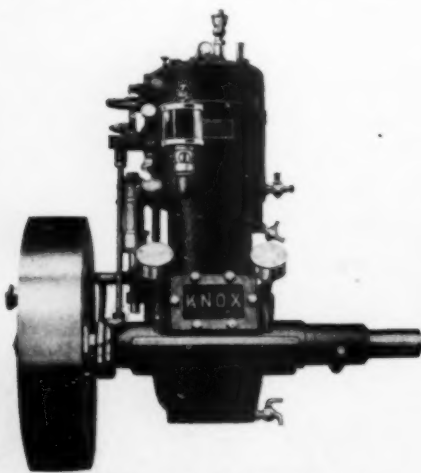
Two-cylinder Brown-Talbot motor.

on each side of the crankcase, pressure sight-feed oiling system with large reservoir. With each engine is provided a complete equipment of muffler, battery of dry cells, coil, switch, grease, etc.

The Caille Perfection Motor Company, Detroit, Mich., will exhibit through their agent, The Geo. G. McLughlin Mfg. Co., a complete line of Perfection engines from 2 horsepower, single cylinder, to 25 horsepower, four cylinder, all of two cycle type, and they plan to offer something entirely new in the finish of gasoline engines. While the design of the engine remains practically the same in the 1910 models the make-and-break ignitor contains some new features. It permits reversing the engine from the spark. And a shifting lever which advances and retards the spark gives the operator as complete control of his engine as with the timer on the jump spark system.

A. J. Houle Motor Works, Holyoke, Mass. Motors of both the two and four-cycle types for marine, stationary and vehicle purposes comprise the product of this concern and their exhibit is representative of their entire line. They are showing a single-cylinder, 8 horsepower, 2-cycle type, a 2-cylinder, 10 horsepower motor of the same type, also a single-cylinder, 3 horsepower, 2-cycle and a 4 horsepower, single-cylinder motor of the four-cycle type, in addition to which a complete line of working parts is displayed in order to demonstrate their quality, both where material and care in machining is concerned.

Camden Anchor-Rockland Machine Company, Camden, Maine. This company will not exhibit their line of boats at the Show, but will have a complete line of their two-cycle, three-port Knox motors, in the following sizes: 2½ horsepower, 3½ horsepower, 4½ horsepower and 6½ horsepower single cylinder, and 5 horsepower, 7 horsepower, 9 horsepower and 13 horsepower 2 cylinder. One of these motors is shown herewith. The 1910 combination carburetor which will be shown at this time, the company claims, will

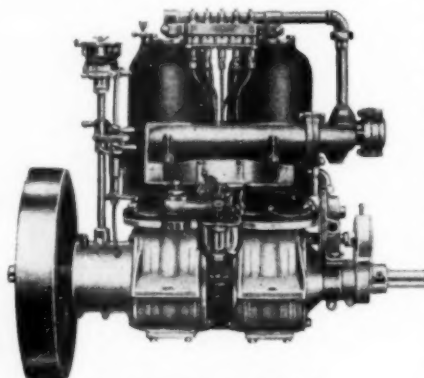


The Knox, single-cylinder type.

not only mix successfully on gasoline, but will do equally well on distillate alcohol, or kerosene. There is a small heating chamber in the center of the carburetor around which the fuel passes. This chamber is heated from the exhaust gases taken from a relief cock on one side of the cylinder. The amount of heat required is regulated by valves located in the relief and inlet pipes.

Fairbanks, Morse & Company, Chicago, Ill. During the past year this firm, which is one of the oldest manufacturers of gasoline engines for stationary and marine purposes in the country, has established a large new plant at Three Rivers, Mich., where their entire line of medium and light duty engines will henceforth be manufactured. The new plant is one of the most modern and most completely equipped in the country, and it will be devoted exclusively to the manufacture of the Fairbanks Morse marine engines, under the personal supervision of well-known designers. A number of important changes have been made on the medium and light duty engines, so that they will be practically new models for 1910. They were completed just in time to be exhibited at Boston.

Brown-Talbot Machinery Co., Salem, Mass. The engines exhibited by this company consist of a four, seven and ten horsepower engine of the single cylinder type, and an eight, fourteen and twenty horsepower engine of the double cylinder type. Special attention is given to the construction of the cooling and

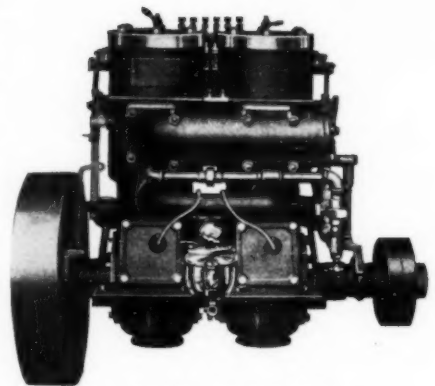


The new Tuttle special.

lubricating systems of these motors and in every case nothing is sacrificed in the matter of strength or efficiency in order to give more speed. The engines are built to give service rather than speed and for this reason every part is thoroughly tested before going into the construction. All the cylinder water jackets are tested under a hydraulic pressure of 100 pounds to the inch and all pumps are given a severe suction test before being assembled with the engine.

Walter J. Forbes, 70 Long Wharf, Boston, Mass. This company will have on exhibition a full line of Tuttle engines manufactured by the D. M. Tuttle Company, Canastota, New York. With a few trifling alterations, the Tuttle engine will be the same for 1910 as for the past season. An interesting example of the reliability of these engines will be a five horsepower single cylinder engine which has had four seasons' hard service and which after having been taken down and cleaned and reassembled will be on exhibition. The Tuttle Special is a new two cycle engine in which, by a novel arrangement of the intake and exhaust ports, it is claimed a better scavenging of the cylinder is obtained than in the ordinary two-cycle engine. An illustration of this engine is shown herewith. Besides one of the latest type of Monarch kerosene engines this Company will exhibit the K. W. magnetos, one of which will be in operation, supplying current for a full set of electric sailing lights and a powerful searchlight.

The Progressive Manufacturing Co., Tor-

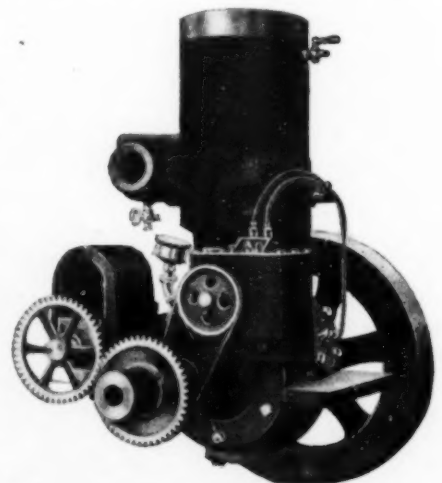


The double-cylinder Victor.

ington, Conn. One of the most complete lines of two-cycle engines ever shown by an individual manufacturer comprises the exhibit of this firm. Their heavy-duty, single cylinder engines, fitted with make and break ignition, have been redesigned for 1910, in addition to which they are showing a new range of powers in 1, 2, 3 and 4-cylinder types, the cylinder dimensions being uniform in each case. These are of 3¼-inch bore by 4-inch stroke. A larger engine of the same general design with a bore and stroke of 4½ and 5 inches, respectively, is also shown under the "Eagle." These are entirely new models and are characterized by the same solid and thorough construction that distinguishes the Eagle motors. They are of the semi-speed type with either make-and-break or high tension ignition, large hand-hole plates, bronze intake manifolds, with vertical check valves built into the manifolds and capable of adjustment from the outside, water-jacketed exhaust and other up-to-date features.

Mianus Motor Works, Mianus, Conn. The motors exhibited by this company are from 3-h.p., single cylinder to 15 h.p., double cylinder, and range in price, including complete piping, gasoline tank, fittings, etc., from \$112 to \$380.50. The motors are of the two-cycle, two port type with make-and-break ignition. Both the single and double cylinder motors are reversible and the speed can be easily regulated by a throttle attachment on the carburetor. The ignition current is obtained from a low tension magneto and the lubrication is of the force-feed type. The exhaust is water-cooled, as is the muffler. All brass work of the motor is polished and the ends of the flywheel hubs are covered with a polished brass cap, giving a very finished appearance.

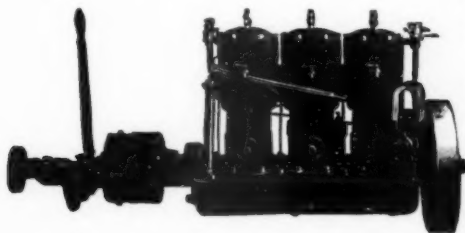
Wolverine Motor Works, Bridgeport, Conn. This company has always been one of the chief exponents of the four-cycle type of motor for marine use and the success that has uniformly crowned the Wolverine motors throughout their long career is ample evidence



Mianus motor with mechanical oiler and magneto.

of the soundness of this preference on the part of their builders. Their exhibit in spaces 22 and 23 consists of a 5-horsepower, single cylinder; 12-horsepower, twin-cylinder; and 18, 36 and 50-horsepower, three cylinder; the latter being a special favorite. The Wolverine motors are among the very few that are equally well adapted to either kerosene or gasoline as fuel, and they have been brought to such a high state of efficiency that extremely few changes of minor importance characterize their design this year as compared with last. The remainder of the exhibit is comprised exclusively of accessories and fittings of the Wolverine engines.

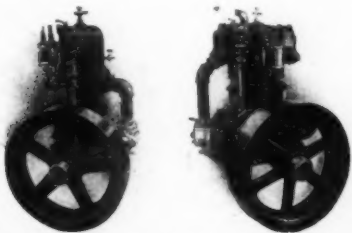
The Ferro Machine & Foundry Company, Cleveland, Ohio. The Ferro exhibit at the Boston Show is in charge of the Boston Eng. Co., and contains a complete line of 1910 Ferro engines, Ferro reverse gears and accessories. The 1910 Ferro models embody all the mechanical features of the 1909 models, the offset cylinder, hinged connection rod, split adjustable bearings, positive pressure oiling system, etc., but a number of refinements have been made in this season's product. Realizing how much the successful operation of a marine engine depends upon its having proper equipment, the Ferro Company are supplying



A three-cylinder Ferro with reverse gear.

complete equipment with their 1910 models. This includes the Ferro reverse gear, magneto, water jacketed whistle, muffler, etc. Particular attention has been paid to increase of efficiency along thermo dynamic lines and the Ferro Company claim to have made great strides in this direction in their 1910 engines.

Palmer Brothers, Cos Cob, Conn. Palmer motors have been so long and favorably known to the motor boat enthusiast, as well as the owner who uses his boat for business purposes solely, that it would be difficult to say anything new on this score. The fact that no less than twelve different models are exhibited for 1910 gives some idea of the many sizes and types of boats to which they are adapted. Both make-and-break and jump spark ignition are employed, the latter using the new Palmer roller timer. Another im-



Palmer motors. Twelve motors are shown.

provement of note is the adoption of a multiple oil feed, while the specification of the Schebler carburetor as standard on these engines for the coming year will also be hailed with great satisfaction by prospective purchasers.

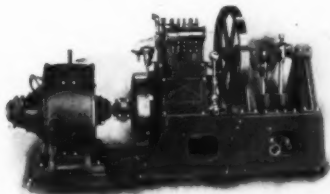
Lackawanna Mfg. Co., Newburgh, N. Y. This company will show a complete line of their valveless motors from 2 to 35 horsepower in ten different sizes. These engines with the exception of the smallest sizes are equipped with either make-and-break or jump spark ignition. Many little improvements have been



A Thrall single-cylinder outfit.

added to the Lackawanna line for 1910 in connection with the ports, carburetor, oiling system, water circulation, etc. The 1910 reverse gear case is an extension of the engine bed, rigid and in perfect alignment, thus incorporating it and the engine in one compact unit. An illustration of one of the Lackawanna valveless 6-cylinder engines is shown herewith.

Thrall Motor Company, 45-7-9 Fort St., East, Detroit, Mich. This company will exhibit the Refined motor in several different styles and horse powers as follows: The three horse-power model with and without copper water jackets; the 6 horse-power model with copper water jacket, clutch and reverse gear and the 10 horse-power model with cylinders cast en bloc and with exhaust and intake manifolds cast integrally with the cylinders. Besides the above Refined motors this company will exhibit the Carroll Refined Carburetor with floating Venturian tube which is entirely new, but which is claimed to be very successful. There will also be on exhibition a line of propeller wheels. The cut herewith is of The Thrall Refined motor equipped with copper water jacket.

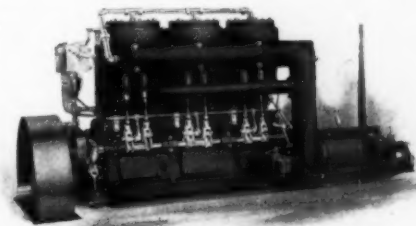


Combination light and pumping set of the Buffalo Gasoline Motor Co.

George G. McLoughlin Manufacturing Co., 24 Washington Street, North Boston, Mass. The chief leader shown by this concern for the coming season is an 8-horsepower, single cylinder motor, of the Caille "Perfection"

type, made by the firm of the same name. This is a heavy duty type of engine, which is made with either make-and-break or high tension ignition equipment and is designed to develop its rated power at the very moderate normal speed of 500 r.p.m. In addition to this motor, the same firm is also showing 2, 3, 5 and 8-horsepower, single cylinder models of the same make, as well as 8 and 12-horsepower twin-cylinder, and a 12-horsepower, 3-cylinder type.

Evans Stamping & Plating Co., Taunton, Mass. "Reverse gears, like men, are judged by what they accomplish," say the makers of the Paragon Marine reverse gear and one-way clutches, in their advance literature for 1910, and judging from what these gears have accomplished in the past there can be no doubt as to the verdict that will be forthcoming where they are concerned. Among their more prominent advantages are, direct line drive on gear transmission; transmission of power on the reverse through four pinions, each engaging parts of three teeth on the engine and internal propeller gears, giving the combined strength of twelve teeth. The actual drive is through a multiple disc clutch varying from 67 to 740 square inches in area, according to the size of the gear and the power for which it is designed. The neutral position is easily found and maintained, and is of ample lat-

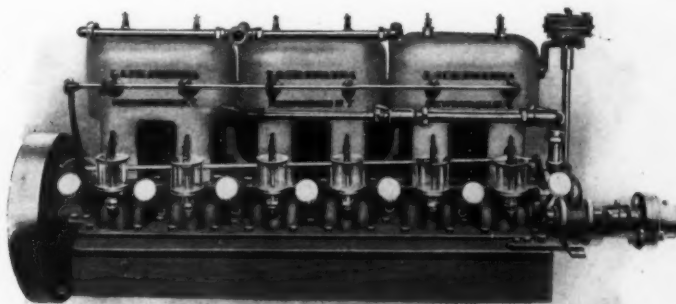


Four-cylinder Wolverine.

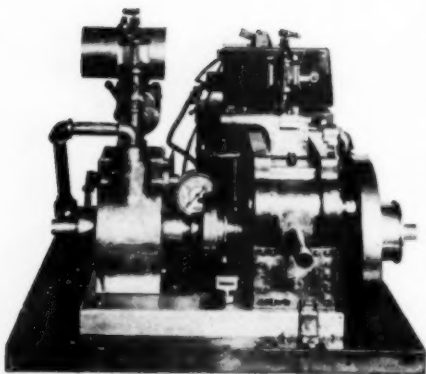
itude so that there is no danger of engaging one way or the other through slight movement. The Paragon gears have numerous other advantages with which many motor boat owners are thoroughly familiar.

V. J. Emery, Beach St., Wollaston, Mass. Mr. Emery will exhibit the Ideal Marine Engine in four, eight, twelve, sixteen, twenty-five horsepowers, all of which are of the 4-cycle type. The 1910 models of this engine are refined and somewhat changed as to minor details from the 1909 product.

W. J. Connell, 36 Columbus Avenue, Boston, Mass. The principle exhibit of this firm of manufacturers' representatives will be a line of Wheeler & Schebler carburetors. All types will be on exhibition, including the new model L, although model B is the type commonly recommended for motor boats. A full line of goods manufactured by the Pittsfield Spark Coil Company, will be shown as well as a number of searchlights manufactured by the Edmunds & Jones Mfg. Company, of Detroit. W. J. Connell is representative for the New England States for these companies.



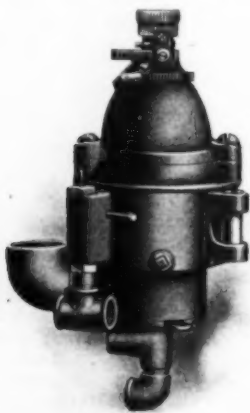
Six-cylinder Lackawanna.



Harriman rotary gasoline engine.

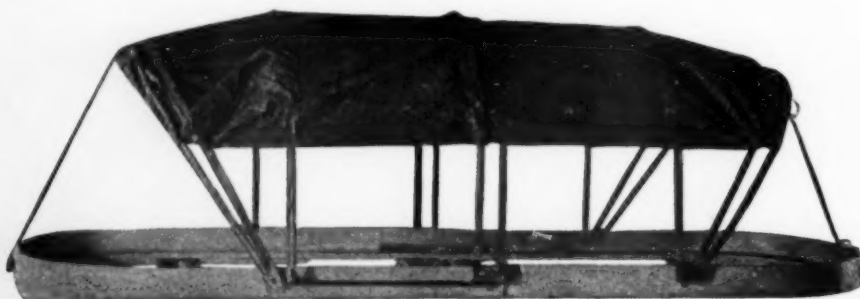
Harriman Brothers, 53 State St., Boston Mass. Running under the power of steam in the basement of the Mechanics' Building, this company will exhibit three engines, a 5 horse-power compound rotary steam engine, a 25 horse-power single rotary steam engine, and what is claimed to be the first successful rotary gas engine and rotary compressor ever exhibited in public. This rotary gasoline engine has no reciprocating piston, piston rod, crank arm or crank shaft. The engine and compressor are connected with an intermediate pressure air and gas tank and there is one explosion for each revolution of the rotor. The compressor forces an explosive mixture into the reservoir, thence into the cylinder, whereupon an electric spark ignites the charge behind the rotor and causes it to revolve.

Westchester Appliance Company, 1315 Canal Place, Bronx, New York City. The Westchester Dry Cell which will be exhibited by the company is claimed by its makers to have exceptionally long life and great recuperative power. The initial voltage of this cell is 1.6 and the amperage runs from 30 to 35 when new and they are guaranteed to



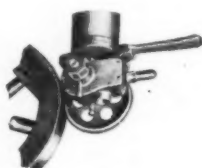
New Knox carburetor.

show a shelf test after three months' standing of not less than 25 amperes. The binding posts are long and securely fastened to the zinc and carbon elements which obviates the possibility of loose connections.

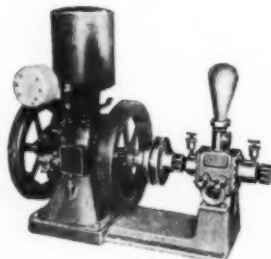


Sliding combination hood shown by Chas. P. McClellan.

Kinney Manufacturing Co., Colonial Bldg., Boston, Mass. It goes without saying that the compact design of the rotary pump has a number of advantages which recommend it for motor boat use. This firm has been responsible for the development of the Kinney positive-pressure rotary pump and within the past few years specialized types for marine use. These special pumps are more particularly for circulating and bilge purposes, but they also show a general line covering practically every service for which a rotary pump may be employed. In addition to this they are the manufacturers of the Kinney Turbo-Engine for general light power purposes. Their exhibit comprises pumps ranging in capacity from 5 to 500 gallons per minute, their positive rotary stroke discharging a definitely determined volume of water at each revolution. One of their novelties is a miniature bilge pump so arranged that slight pressure on a lever engages it in friction contact with the flywheel of the motor. It has a capacity of about 100 gallons per hour.



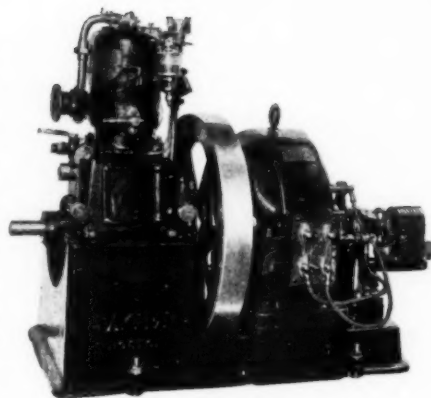
New Kinney bilge pump.



Kinney rotary pump.

Havoline Oil Company, 80 Broad Street, New York. This company has an interesting exhibit consisting of a full line of oils, both fluid and non-fluid, prepared especially for the requirements of motor boats. They also have a display of illuminated pictures of such well-known boats as Dixie III, La Truda, Haida-Papoose, Irene III, Nimrod, and a number of others.

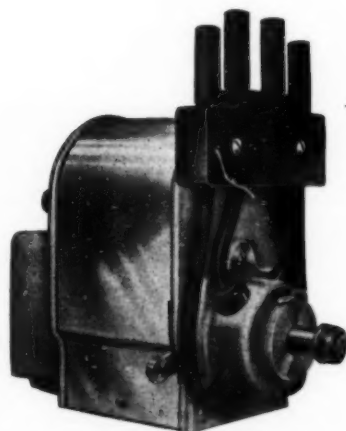
Chas. P. McClellan, Fall River, Mass. This company will have on exhibition the McClellan Simplicity Spray Hood, which is especially useful for cruising boats. By day it may be used for an awning or spray shield, and at night as a sleeping tent. It has peep holes for admitting light at either side or end as desired. These hoods are strongly built, all fixtures being made of bronze and the frame of selected white oak. The cover material is of 8 ounce Government khaki duck. These goods are mildew and shrink-proof and



Jaeger lighting set.

the color is considered absolutely fast. Brass slide rods are used, and screws and eyes are furnished ready to attach to the boat.

Pittsfield Spark Coil Company, Dalton, Mass. Pittsfield ignition systems are so well and favorably known in both the automobile and marine engineering fields as scarcely to call for extended comment, but the success that the new Pittsfield magneto has met with during its first year on the market is well worthy of mention. It is an unusually compact and entirely self-contained machine of the high tension type, embodying numerous features which serve to distinguish it from the ordinary run of magnetos at present on the American market. The chief of these is the manner of stepping the current up, the induction coil being incorporated with the machine itself in a very simple and effective manner. This relieves the armature of the secondary winding but places the coil at a very short distance from it. The condenser, which is of the Pittsfield circular type, is located between the top of the armature housing and the magnets. The Pittsfield magneto



The Pittsfield magneto.

is designed for either automobile or marine use. The company still continues to list the numerous ignition specialties for which it is well known.

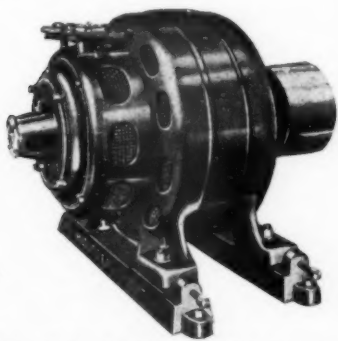
Edmunds & Jones Mfg. Co., Detroit, Mich. Among the motor boat accessories exhibited by this company is a searchlight made in three different sizes, the smallest having a mirror of six inches diameter, and the largest an eight inch mirror. All of the E. & J. searchlights are constructed in such a manner as to allow the greatest ease in polishing, no screws being used. The E. & J. generator used in connection with the searchlight is also exhibited. This generator is also constructed with the idea of permitting it to be easily kept clean and bright, and for this reason all surfaces are kept as smooth as possible.



Dayton ignition and lighting outfit shown by the Stuart-Howland Co.

Stuart-Howland Company, 1-3 Winthrop Square, Boston, Mass. This company is making a specialty of the Dayton Launch Lighting Outfits and has a complete line of these on exhibition. The 8 light outfit of this company is designed to give complete electric service for boats or from 20 to 60 feet in length and consists of the Dayton type K dynamo, Dayton switchboard and 12-volt, 85 ampere-hour Hubler-Dayton storage battery. This outfit is designed to carry an overload of from 12 to 15 lights on emergency. The 15 light outfit will carry an overload of from 20 to 25 lights. Each of these outfits gives three possible sources of current for ignition. Another specialty of this company is the Puritan switch, shown in the department of "New Things," and will be found most useful for the dual ignition system in motor boats.

Hoyt Electrical Instrument Works, Penacook, N. H. The exhibit of this company will consist of a full line of instruments, including portable and switchboard types of ammeters and voltmeters. The cuts shown herewith illustrate the newest style. The particular features of this company's product are the small pocket ammeters and voltmeters with indestructible metal dials, which are considered more accurate than the ordinary hand-drawn scale. The permanent magneto type indicates polarity as well as current and is guaranteed for one year.



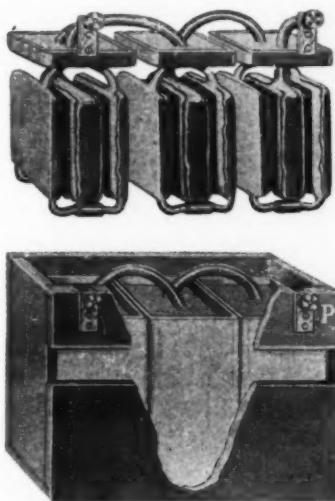
Holtzer-Cabot ignition and lighting dynamo.

Holtzer-Cabot Electric Co., Brookline, Mass. The demand for the magnetos manufactured by this firm has been so great during the past year that a very large number of motor boats are now equipped with them, and they have given such uniformly satisfactory results in service that it has been difficult to point out any part of the design that could be improved. They will accordingly be shown unaltered for 1910. It is apparent that this has been the result of the lengthy experience which this concern was able to bring to bear upon the design of a magneto for the service in question. They have been manufacturing delicate electrical apparatus for a number of years and did not have to make the buyer pay for their experimental work. They will also show their standard line of electrical horns unchanged.

William E. Thomas and Co., 42 South Street, New York City. This company will exhibit a complete line of spray hoods. These are made in all sizes and styles, to protect all or part of the cockpit or to completely enclose same. They are made of government khaki

duck on brass frames and are so constructed as to fold out of the way when not needed for protection from sun or spray.

C. F. Roper & Company, Winthrop Street, Hopedale, Mass. This exhibit will include the reversing Roper Safety Propeller for 1910 and a new solid speed wheel and safety coupler. The 1910 products will show a decided im-



Champion ignition battery shown by Hector MacRae.

provement in the line of strength, handiness and neatness of appearance. The bow control device for use with the Roper Safety Propeller operates in principle exactly the same as does the regular equipment. The difference in construction lies in the manner in which the throw of the reverse lever is communicated to the reversing sleeve of the propeller proper. On the regular equipment the reverse lever acts directly on the reversing sleeve. On the bow the control equipment the control equipment the throw of the reverse lever is communicated to the sleeve by means of a cross shaft, two small auxiliary levers and a length of piping. The vital feature of the Roper Safety Coupling is the adjustment which makes it possible to set it at a given limit of power so that in striking a rock or other obstruction the wheel will be immediately tripped and released from the engine.

The Orswell Ignitor Company, 192 Commercial Street, Boston, Mass. This company will exhibit the Orswell ignition device, in which the spark plug and coil are combined



The 1910 Roper Safety Reversing Propeller with bow control.

in one compact whole. This system of ignition is moisture proof, heat proof, and water proof, as it is completely enclosed and has the advantage that by combining the coil and plug all secondary wiring is eliminated.

The Richardson Engineering Company, Hartford, Conn. The exhibit of this company will consist of lighting outfits for boats and yachts. They make a specialty of all sorts of lighting outfits which can be supplied for any type of boats from the small launch to the ocean going cruiser with its equipment of arc searchlights, etc.

Hector MacRae, 316 St. Paul Street, Baltimore, Md. This company will exhibit a complete line of their Champion accumulators for electric lighting and ignition on launches and yachts. These range all the way from a 12-volt, 40-ampere-hour size for boats of 30 to 35 feet to the 60-volt, 150 ampere-hour size for use on yachts from 60 to 100 feet requiring arc search lights. For ignition purposes the 6-volt, 25 ampere-hour type G, will be exhibited, which is the standard size for this purpose and will run an engine from 50 to 200 hours on a charge, depending upon the speed of the engine and number of cylinders. The illustration shows the 6-25-G and its elements.

The Snow and Petrelli Manufacturing Company, of 445 Chapel Street, New Haven, Conn., are showing a complete line of "Joe's" improved reversing and one way clutches. A new model has been placed upon the market for 1910 which embodies many new features. The gears are three in number, slow running, and practically noiseless in their operation, and with the multiple disc clutch, form a very light and simple reverse arrangement for any type of marine motor.



Ever-Ready inspection lamp.

The American Every Ready Company, 304-322 Hudson Street, New York City. This company, formerly The Am. Electrical Novelty & Mfg. Company, will exhibit as heretofore, a full line of their electrical appliances including the Ever Ready Ignition Dry Cells, Battery Meters, Bull Dog Battery Connectors, Safety Inspection Lamps, and Pocket Flashlights. The illustration herewith is of the Ever Ready

Inspection Lamp produced by this company. This lamp is very handy for locating engine troubles at night in a dark boathouse or engine room and can be used with either storage battery or dry cell. It is equipped with Osram high efficiency lamp and twelve feet of cord.

The Teel Mfg. Company, Medford, Mass. This company will exhibit, in spaces 37 and 38, a complete line of their motors and this season finds a new product in their already large line. It is put up in the following sizes: 2-cylinder, $5\frac{1}{4}$ by $6\frac{1}{2}$ inches rated at 12 horsepower, 4-cylinder $5\frac{1}{4}$ by $6\frac{1}{2}$ inches rated at 25-35 horsepower, and 6-cylinder $5\frac{1}{4}$ by $6\frac{1}{2}$ inches rated at 40-55 horsepower. This motor has its valves on opposite sides of the cylinders and of large diameters, to overcome the friction of the in-coming and exhaust gases, and is built on the long-stroke principle. The exhaust type is water jacketed and the intake pipe is designed with easy curves to produce the minimum of friction. The pumps, magnets and clutch are all located on the engine foundation, thus forming a compact unit.

Watres Manufacturing Company, 1132 Broadway, New York City. A complete line of the carbureters, whistles, switches, funnels, etc., manufactured by this company will be on exhibition. The Duryea carbureter, it is claimed, is the only one in which the flow of gasoline is automatically adjusted to the speed of the engine. It has an automatic adjustment by which the raising of the auxiliary airport increases or decreases the flow of gasoline so the amount is always directly proportional to the speed. The Watres whistle is connected to the engine by a special relief vent in which the opening is less than $1/100$ of an inch in diameter and it is claimed that it interferes not the slightest with the efficiency of the engine. The Watres switch is a double pole, double throw, rotary switch, arranged to make immediately available any one of the sources of current. The ash funnel is constructed with a double wall to allow the escape of air when pouring fuel into the tank, thus avoiding the usual delay.

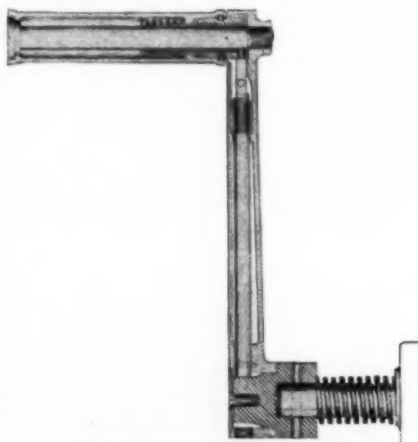
Gray Hawley Manufacturing Co., Detroit, Mich. A powerful automatic whistle suitable for either pleasure craft or commercial boats is being shown by this company. The outfits range in price according to size from \$5 to \$50 and comply with all the requirements of the United States Government in the matter of equipping boats with signals that can be heard at a suitable distance. A popular type of their whistle is the auto-chime which gives a pleasant sounding note which is at the same time penetrating enough to be heard for a distance of several miles.

Gray Motor Company, Detroit, Mich. This company shows a large line of motors from 1, 2 and 3 cylinder, 3 to 30 h.p., up to the large engines for racing machines. An interesting list is shown by this company of races in which boats equipped with Gray motors have taken part and the positions won in the various races. A special feature is made of the 2-cylinder motor rated at 12 h.p. but said to actually develop from 13 to 16. This engine, although moderate in price, is built of excellent material and is of light weight and high speed. All Gray motors have pressure feed oilers and the smaller types are equipped with a metal cased spark coil attached to the side of each cylinder.

Racine Boat Manufacturing Company, Muskegon, Mich. The exhibit of this company will consist of a complete line of standard motor boats from 16 to 60 feet in length, both cruisers and speed boats. The frames, planking and decking are of white oak and all fittings are of polished brass. The illustration shown herewith is the 19-foot runabout having a beam of 4 feet 6 inches and a draft of 16 inches. The speed is about $9\frac{1}{2}$ miles per hour. The construction of this boat is of oak and cypress, the frame being oak and the planking and deck cypress. The cockpit is completely sealed. Two cushioned seats with cushioned backs are at either end

of the cockpit and the open part can be utilized for chairs. The forward cockpit in which the motor is located has two seats, one on either side. The motor is a five horsepower, single cylinder.

Hilton Manufacturing Company, 15 State Street, Boston.—The Hilton Safety Starting Device, an illustration of which is shown herewith, is entirely centered in the crank handle so that it can easily be attached to any motor boat by simply removing the old handle. The instant the back fire appears the crank is dis-



Hilton Safety Starting Crank.

engaged and does not fly back the smallest fraction of an inch. The parts are made entirely of tool steel with the exception of handle which is of Victor vanadium bronze. This company will also exhibit a starting device for use when it is necessary to employ a gearing-down mechanism and where the space does not allow of attaching crank without a sprocket and chain. This device is so made that after the engine starts it is automatically disengaged.

The Fairbanks Company, 34-44 Pearl Street, Boston, Mass. This company is exhibiting a full line of Fairbanks Victor Marine engines which are built especially for heavy duty. They are of the two-cycle, two port type, run at a slow speed and have make-and-break ignition. They are built in single cylinders only and run from $1\frac{1}{2}$ horsepower up. These engines are equipped with a fuel mixing valve of a special type designed by this company, which has been in use for a number of years. The purchaser has an option of a float feed carbureter at a slightly increased expense. The feature of these engines is the fact that all parts are interchangeable and may be readily installed.

Sagamore Engine Company, Lynn, Mass. At the exhibit of this company is shown a 3, 6 and $7\frac{1}{2}$ h.p., single cylinder engine, a 6-h.p., double cylinder engine with a jump spark, and a 15 and 40-h.p., double cylinder engine fitted with the standard make-and-break spark system of ignition. The 15 and 40-h.p. engines are equipped with mechanical force feed oilers and the other style with double feed oil cup. The pistons and rings of these engines are made of gray iron with rings thick on

one side and thin on the other, thus allowing even expansion and insuring a perfect fit in the cylinder. The rings are cut with a flat joint and pistons have oil grooves cut around them for the purpose of lubricating the cylinder walls.

Vivax Storage Battery Company, 2224-2234 Michigan Avenue, Chicago, Ill. This company have lately developed and will exhibit a new lighting and ignition battery. Instead of carrying one large battery the company claims that it is an advantage to use two smaller ones wired in parallel, as shown in the accompanying cut, which system increases the amperage. When necessary to charge, one battery may be taken off, the other remaining in service, which arrangement facilitates the handling, reduces the liability of breakage, and permits continuous use of the engine.

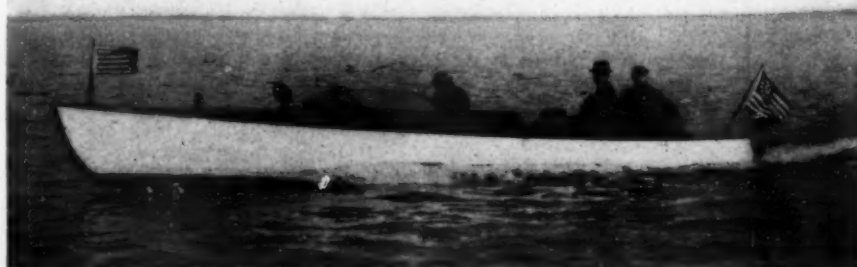
Trimount Rotary Power Company, 206 Summer St., Boston, Mass. This exhibit will include three sizes of the 1910 Trimount Rotary Power Whistle Blowers and whistles Nos. 0, 1 and 2, also the No. 1 Whistle Blower with whistle and fog horn connected, and several power and hand pumps and air compressors. The blowers are made of a special bronze composition, finished in dull nickel and black enamel. The whistle and connecting elbow are of nickel highly polished. It is possible by means of a branched pipe and a three-way cock to use the blower both for fog horn and whistle. With this blower no tanks for air compression are required.

Burn-Boston Battery & Mfg. Company, 8 Doane Street, Boston, Mass. This company's exhibit will consist of ignition batteries. It is claimed that these batteries will not dry up or freeze; that they require no attention or charging for an entire season; that they contain all the advantages of the dry battery in ease of handling and size and are equally reliable as the old type of jar battery without their disadvantage. These cases are unbreakable and are salt water-proof. It is further claimed that these batteries do not deteriorate while standing idle.

Buffalo Gasolene Motor Co., Buffalo, N. Y. This company has on exhibition in spaces 68-72, a representative display of the Buffalo line of engines, consisting of 22 different engines of regular heavy duty and high speed types. Two new speed engines are shown, one of which is a 4-cylinder, $4\frac{1}{4}$ by 5 inch, rated at 25 h.p. and called the Buffalo Auto Marine Engine. This was placed upon the market in order to fill the demand for a light weight, high speed engine in a smaller size than the 60 h.p. The other new motor is an 8-cylinder engine of the V-type, giving high power in a concentrated space. This engine is but a trifle more than half as long as the upright type and is rated at 225 h.p.

Essex Engine Co., Lynn, Mass. This company will exhibit representatives of their extensive line of engines. They build both a heavy and light weight class, known respectively as the Essex standard and the Essex special. The latter retain both the efficiency and reliability of the heavier type. These types are similar in design and cover a wide range of powers in both single and multiple cylinders.

Descriptions of exhibits continued on page 49.



Elco express launch exhibited at Boston by the Electric Launch Co.



OUT OF GASOLINE

SUPPLEMENT TO **MOTOR**
BOATING



Talks With Our Naval Architects.

Charles D. Mower.

MR. CHARLES D. MOWER, of 29 Broadway, New York City, is a native of Massachusetts and had his early training as a naval architect with Arthur Binney, of Boston, successor to Edward Burgess. After being with Mr. Binney from 1895 to 1898, Mr. Mower associated himself with A. B. Crowninshield, of Boston, for a year and then removed to New York to become designing editor for a boating publication. On January 1st, 1906, he opened an office at 29 Broadway where he is now located.

Mr. Mower's latest design is the International Sonderklasse Champion Joyette, belonging to Commodore W. H. Childs, of the Bensonhurst Yacht Club. While most of his work has been among sailboat designs, particularly racing craft and auxiliaries, he has designed a number of power boats. Prominent among these are the 70-foot cruiser Marguerite II, belonging to Commodore Cartledge, of the Philadelphia Yacht Club, and equipped with two 25-horsepower engines of a special design; the 50-foot cruiser Graham belonging to Gabriel Reeves, of Yonkers; and Dr. J. M. Gibbons' 56-foot day cruiser Fiji, of Thousand Island Park on the St. Lawrence. One of Mr. Mower's speediest designs is that of Idlewild, a 40-foot boat, equipped with an 8-cylinder, 150 horsepower engine, belonging to P. H. Hesser, of Cincinnati. This boat was built last year and has a record of better than 32 miles per hour. Two designs which will make their appearance during the coming summer will be a ketch-rigged auxiliary to be built by subscription for Dr. Grenfell, of the Labrador Mission, and for which Mr. Mower volunteered his services; and the "one-design

class" of power boat to be used in races held by the Thousand Islands Yacht Club next season. A complete description of this class appears on another page of this issue.

Mr. Mower does not take the pessimistic view of some of the "old salts" regarding the

power cruiser and the craft known as the auxiliary cruiser. Although this has shown a change in the nature of cruising, the fact is not to be deplored inasmuch as an entirely new field is opened for long and interesting trips not possible with a sailboat. Such events

as the coming Havana race, one of the longest ever attempted, covering a distance of almost 1,400 nautical miles, and the race planned for next summer from Juneau, Alaska, to Seattle, a distance of over 1,000 miles, were impractical before the motor boat was made a possibility. Many owners of sailboats are equipping them with auxiliary power which, of course, increases the usefulness of the craft so that calms and the passage through narrow channels no longer trouble the yachtsman.

"Personally I do not see much value in power boat racing under present conditions. There is too much sameness to the sport and not enough chance to exercise personal judgment. The man who can afford to put the most money into a racing craft is generally the winner, and inasmuch as it is rarely practical for boats to travel long distances to compete in races, the first events of the season in any one section generally foretell the final results. No really successful system of measurement rating has ever been devised for power boats, and the time allowance method has so many disadvantages that races are seldom satisfactory from a spectator's

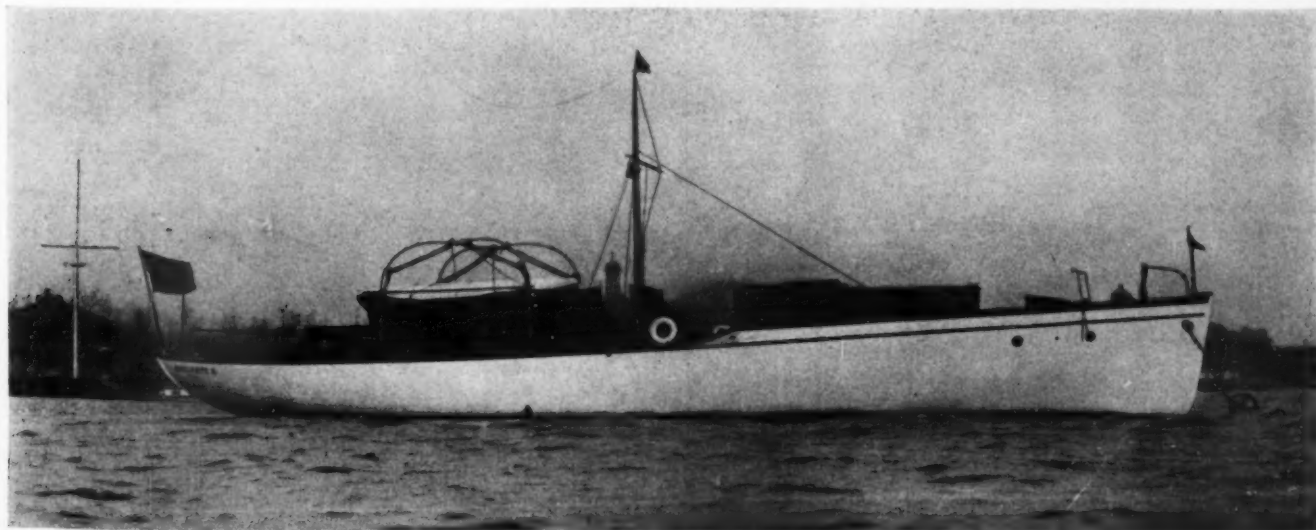
point of view. The 'other fellow' in the race has to content himself with the more or less vain hope that his more speedy rival's engine may break down and give his own boat a chance. If this doesn't occur he must be satisfied with the fact that his boat is at least a

(Continued on page 48.)

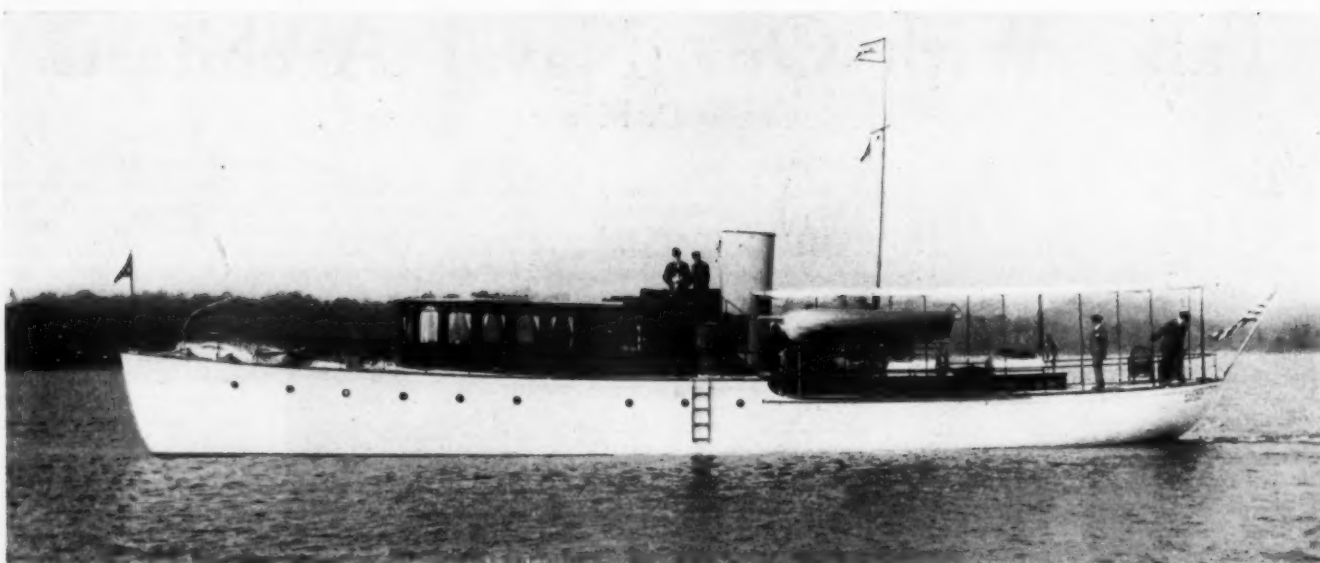


Charles D. Mower, Naval Architect.

passing of the sailboat. "Sailing is too good a sport," he replied upon being questioned, "to be entirely displaced by the entrance of the power boat into the field. I must confess, however, that most of the sailing craft now built are for racing purpose, and the sailing cruiser has to a large extent given way to the modern



Marguerite II, Commodore Cartledge's twin-screw, 70-footer, is one of Mr. Mower's later designs. The plans are on page 24.



Kalmia is attractive in appearance and maintains a cruising speed of thirteen miles per hour.

A Twin Screw 76-Footer

KALMIA, the seventy-six foot twin screw cruiser illustrated herewith was designed by Messrs. Cox and Stevens and has just been completed at the Lawleys' yard in South Boston for Mr. Hubart J. Park, of New York.

The illustrations herewith and the accommodation plan which may be found in the department of New Motor Boat Designs, in this number, give a good idea of her appearance, interior arrangement and finish. Her general dimensions are as follows: Length over all 83 feet, length on the water-line 76 feet 6 inches, beam 14 feet and draft 3 feet 6 inches. The power equipment consists of two fifty horse-power Standard motors, situated amidships under the bridge and which by means of twin screws give the boat a cruising speed of thirteen miles per hour. The engine-room is well ventilated by a large skylight and the stack, and contains the gasoline tanks with a capacity of one thousand gallons. It is entirely separated from the rest of the boat by water tight steel bulkheads, which arrangement makes as safe an installation as can be provided. By locating the engines and fuel tanks amidships the heavy weights are kept in a central position. This, of course, makes for seaworthiness and tends to keep the trim undisturbed by any alteration in loading. The engine is controlled from the bridge.

From the stem to the stack Kalmia has a flush deck and from this point aft there is a cabin trunk, with skylights, standing over the owner's and guests' quarters. The hull is very substantially built, with keel and frames of white oak and planking of yellow pine, laid in two thicknesses so as to obtain the maximum strength without undue weight. The deck is of white pine laid in narrow strips. The deck house, cabin trunk, skylights and hatches are all of teak.

Kalmia was designed primarily for use in southern waters, although the owner wished to be able to use her in the North. Therefore particular attention was given to ventilation and the draft was kept as light as possible. At the same time a form of hull has been produced that will make her a good sea boat in any kind of weather that she is likely to encounter. She is fully equipped in every way, having hot and cold running water, etc., and carries, in addition to the owner's gig, a sixteen-foot motor boat, having a speed of ten miles an hour.

The deck house forward contains the dining-room which is exceptionally large, there being sufficient room for at least twelve persons to dine comfortably. Extending around the forward end is a sofa and at the after end there is a large sideboard. The galley and pantry are also on deck immediately abaft the dining-room, an arrangement which will ensure cool quarters for the cook and steward in the Southern climates.

As it has been found from experience that the space below the deck house is not available for living quarters when cruising in the south, a portion of this space has been utilized by the designers for a large storeroom so that the vessel may

carry sufficient stores for a long cruise. The steward has access to this storeroom by a special hatch from the pantry.

The after living quarters are reached by a companionway on the starboard side which leads to a large lobby, containing a comfortable leather upholstered sofa and hanging space for oilskins, etc. Forward of this lobby and extending the full width of the boat is the owner's stateroom. This room is ten feet in length and contains a large double berth on the starboard side, a sofa and lockers on the port side, and a bureau at the forward end. Connecting with this room and just aft of it on the port side is the bathroom, which is exceptionally large and equipped with all the usual appliances, hot and cold water and a large tub. By the use of a hand pump with outboard connections it is also possible to draw salt water for the bath when desired.

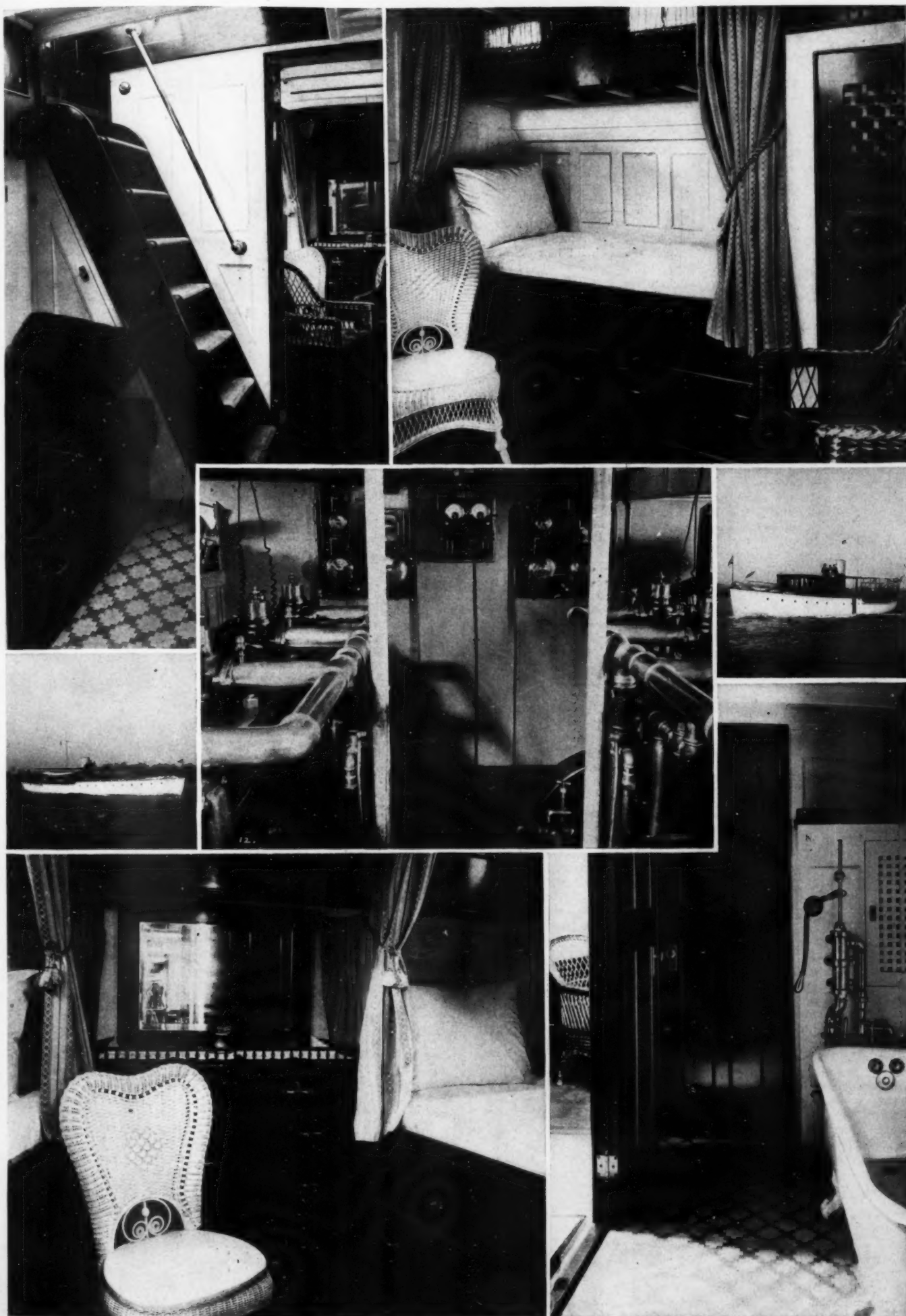
Aft of the bathroom and lobby and connecting with both, is another full width stateroom, in which are two berths, a bureau and two large wardrobes. All of these rooms are lighted and ventilated by large skylights in addition to the ventilation provided by the windows in the trunk sides.

The quarters for the captain and engineer are below, forward of the deck house. These officers have separate rooms, each equipped with berth, wardrobe and desk. The crew's quarters are just forward, and access to the forecabin is had by means of a companionway on the forward deck. The officers and crew have their own toilet arrangements.

The finish in the dining-room is in carefully selected mahogany. In the rooms of the living quarters the furniture, doors and trim are of mahogany with paneling of white enamel, the general style being Colonial in effect.

The deck arrangements of Kalmia form an attractive feature which will be appreciated when cruising in Southern waters. Both forward and aft are ample accommodations for those who enjoy being "on deck," the after deck being fitted with awning stanchions and a folding canopy roof. The deck house, immediately forward of the bridge, is roomy and comfortable and will make a pleasant lounging-room in stormy weather. It contains thirteen large windows, providing plenty of light and ventilation, and giving an excellent view. The owner's gig and the 16 ft. tender are swung upon davits clear of the deck, and no space that can be used to advantage is sacrificed. A passage from two to four feet in width is left upon either side of the deck house and trunk cabin, giving an unobstructed walk from the forward to the after deck.

The vessel throughout is an example of the highest development of motor boat design and is one of several similar boats lately designed by Cox & Stevens. She can be run with a crew of four or, at the outside, five men, and is capable of going anywhere her owner desires. She is attractive in appearance, easy to handle, and quite economical, so that, with her generous freeboard and shallow draft, she should prove not only a good sea boat, but also an excellent craft for navigating the inland waterways of the South.



Kalmia—Above on left, companionway and lobby; on right, after stateroom. Center, the engine-room. Below on left another view of after stateroom, and on right the bathroom.

Regarding Waterways Improvement.

Importance of the Development of Canals and Sounds between Norfolk and Beaufort.

By Chester L. Wynn.

AN early dream of the Fathers of the country was of improvements to the internal waterways of the East by government aid and under government authority and control. Later, with the birth of sectional rivalries and disagreements as to which locality should be first favored, this desire became submerged in the strife over the differences and cropped up only occasionally as the hobby of some few public spirited men. Washington's efforts to have the government build a Dismal Swamp canal so as to join the Chesapeake with the Albemarle and Pamlico sounds were taken advantage of later by private corporations and the many bills introduced into the first Congresses became forgotten when the thoughts of the legislators were diverted to newer and more alluring channels.

The records of the Congressional proceedings show that several bills were introduced in the first few years of the country and in 1816 John C. Calhoun asked that the government profits in the national bank be applied as a fund for waterway improvement. This request met with the same fate as the preceding bills and until a few years ago governmental action on canals was looked upon with disfavor. But, in the recent years, a movement for canal improvement has grown from a feeble voice to a national demand, and the 30,000,000 people of the East expect, and have the right to expect, that their Senators and Congressmen will take some definite action in carrying out their will.

At the last session of Congress, the legislators followed the line of the least resistance and authorized a survey of an inland chain from Boston to Key West. At two other sessions of recent years, competent boards of engineers reported favorably upon a project to have the government take over the Chesapeake and Delaware canal, between the Delaware and Chesapeake Bays, and to purchase the Chesapeake and Albemarle cut between the Elizabeth river and the Currituck Sound. The government has been at work for a year in cutting a 12-foot canal from Beaufort Inlet north to Pamlico Sound. These Congressional acts combined with the endorsements of the projects by Presidents Taft and Roosevelt constitute the attention which the government has given to the Eastern inland waterways during the past few years, and it is believed that the present Congress will go much further.

The advent of the motor boat with its many uses for towing, pleasure and carrying of freight has acted as an important factor in the development of the water courses. This has been especially true of the shallower waters of the South. It is on water what the automobile and the auto truck are on land and has made valuable and available territory hitherto of little importance. The development of the gasoline engine to a power that will permit its use in the lumber trade for towing and even propelling barges has worked wonders in practically every section of the South Atlantic coast and especially in the Virginia and Carolina lake regions.

The advantages of governmental control of the inland waters of the North and South will be myriad to the motor boat, large and small. The advocates of Federal action want toll-free and tidewater canals and are in a good position to have their demands granted. Along with the abolition of tolls and locks will naturally come well marked and buoyed channels through the waters which the cuts connect. In the shallow Southern sounds this will mean much to the advancement of the motor boat as a means of pleasure and business.

The importance of the development of the canals and sounds between Norfolk and Beaufort, N. C., cannot be exaggerated. The character of the estuaries, rivers and sounds that line the coast between these two points is an effective barrier to the construction of a coast line railway or direct highways. These waters will probably never be deepened to such an extent that ocean steamers of deep draft can pass through them, but a 12 or 16 foot depth will go far towards making them avenues of trade and pleasure. With this depth the most dangerous reefs of the coast will be avoided. Cape Hatteras, long recognized as a graveyard of ships, will hold no fears for the cruising yachtsman or coasting mariner.

In one of his messages to Congress, George Washington urged a project of development in these waters. When this was not made the basis of governmental action, he interested the State of Virginia in the waterway question and, as a result, the Dismal Swamp Canal Company was given a charter in 1790, to connect up the Chesapeake Bay and the Albemarle Sound. A small cut with five locks was made, and 100 years later its control passed into the hands of another company which reduced the number of locks to two and greatly enlarged the channel. The Dismal Swamp cut, or as it is now known, the Lake Drummond Canal, taps a most interesting and unique region. It runs from Deep Creek to South Mills, N. C., a distance of 22 miles, with two locks, each 250 feet long, 39 feet wide and 12 feet deep. The route for a boat through this cut is from Norfolk, 7 miles up the Elizabeth river to Deep Creek; 3 miles up this stream, to the north lock of the canal. The lock at South Mills opens into Turner's Cut and the course leads down the beautiful Pasquotank river to Elizabeth City and into Albemarle Sound. This canal affords a transportation outlet for a number of towns and villages and a large population which, because of the physical characteristics of the section, is not tapped by railroads.

A second canal which serves to connect Norfolk with the Carolina sounds is the Chesapeake and Albemarle cut which runs at right angles to the Dismal Swamp route. It connects the Elizabeth river with the North Landing river and continues down that stream to the Currituck Sound. This canal has been reported upon favorably by a board of engineers that was recently authorized by Congress to make a survey of the two routes with the view of placing one of them under govern-

ment control. The cost of improving the entire length of the route from Norfolk to Beaufort to a 12-foot depth was estimated to be \$3,400,425, which included the purchase of the present canal, dredging in North Landing river, and Currituck, Croatan, Albemarle, Core and Pamlico Sounds, and the digging of a canal from the last named sound to Beaufort Inlet.

The Beaufort to Pamlico section of the route was given an appropriation of \$550,000 in the Rivers and Harbors Act of March, 1907, and this was the full estimated cost of the undertaking. The contract was let with the understanding that the work should be complete by the end of 1909. This cut will give the southern ports a protected waterway to the Chesapeake Bay, and it is to be presumed that Congress will make the necessary appropriations for the improvement of the entire stretch. The Beaufort-Norfolk link is the first to receive real Congressional recognition and the first to be constructed with government money and to be placed under government control.

The advantages of the northern part of this waterway to the government have already been shown. Six torpedo boats of small draft were taken through the Dismal Swamp cut in November, 1908, en route to the Charleston (S. C.) Navy Yard, in avoidance of the dangerous passage around Hatteras. At that time they were compelled to leave the protected waters at Ocracoke Inlet because the depths south of Albemarle Sound were not sufficient to allow them to emerge at Beaufort.

A few months ago, the Navy Department decided to send 4 torpedo boats of somewhat larger draft from the Philadelphia Navy Yard to Charleston, and Congressman J. Hampton Moore, president of the Atlantic Deeper Waterways Association, asked that they be sent over the inland route to the South. The secretary answered his request by saying that the depths of water in the Delaware and Chesapeake cut and the canals south of Norfolk were too shallow to allow them to pass through. They were sent by the outside route and being caught in a storm off Hatteras were driven back. They were compelled to return to Norfolk for repairs and in order that a number of men might be taken off and sent to the hospital. When the government completes the Norfolk-Beaufort link these small war vessels will not be hampered by such conditions.

Governmental control and purchase has also been recommended to Congress for the Delaware and Chesapeake canal. Besides the favorable report of these engineers, the House Committee on Railways and Canals and the Agnus Commission have made recommendations to the same effect. The cost of making it a tidewater canal free from locks and under varying dimensions has been estimated as follows: 35 feet deep, \$20,201,323.70; 25 feet deep, \$14,291,202.40; 16 feet deep, \$11,982,596.81; and 16 feet deep, of diminished width, \$10,638,993.89. The last estimate is for a canal with one rip-rap revetment and one wooden revetment to permit easy removal in case a wider and deeper canal becomes necessary. These estimates include in each case the cost of purchasing the present canal for \$2,500,000.

The Pennsylvania, Maryland, New Jersey and Delaware delegations in Congress have determined to prove to that body during the present session that urgent necessity of governmental action on this canal, which was built by hand in 1829 and is much as its builders left it.

The placing of this canal under the care
(Continued on page 48.)



The Lake Drummond and the Chesapeake and Albemarle Canals.

Dixie Jr.--A New 20-Mile Runabout

THE speed boat Dixie Junior, which is shown in the accompanying illustrations has created quite a stir on the Jersey coast, although she did not appear until late in the season, too late in fact to take part in any of the season's racing. She is not only one of the fastest boats of her length ever built, but also one of the fastest of her power, regardless of size. Dixie Junior was designed and built by Captain S. Eartley Pearce of the firm of Pearce & Fenner, of East Orange, N. J., for Mr. T. Morris Fenner of that city. Her general construction is interesting as an example of the best that can be procured. The dimensions of the boat are: Length over all, 24 feet; beam overall, 4 feet; the frames of selected white oak, continuous from gunwale to gunwale, and spaced six inches between centers excepting under the engine bed, where the spacing is four inches. The planking is of Spanish cedar, running the entire length of the boat, entirely copper-fastened and riveted over copper washers. The stem and stern pieces are of white oak, lined with thin mahogany. The entire top work and interior finish are of Honduras mahog-

that aluminum is used for base, intake bonnet, cylinder heads and gear case, to reduce the weight of what is, to begin with, an extreme-

what her displacement will be, owing to a lack of knowledge of the relative weights and specific gravities of the various woods com-



As she appeared just after launching before the cradle was removed.



At 20 miles per hour she disturbs the water but slightly.

any. The hull is designed for maximum lightness and strength. She is particularly stiff and at the highest speed shows scarcely any vibration on account of the special engine bed construction and the smoothness of motor operation.

The power plant is a four-cylinder, 4 x 4 inch Syracuse motor conservatively rated at 16 horsepower and of regular type, except

ly light motor.. It is of the two-cycle, three port type, combining the most advanced ideas in marine motor construction. The motor is placed forward under a hinged hood and the controls are embodied in a special automobile steering wheel made by the J. A. Seely Manufacturing Company, of Ogdensburg, N. Y., which, with a rear starting device, puts the control in the hands of one man. The gasoline is forced to the carburetor under pressure by an air pump, fitted to the starboard side of the coaming.

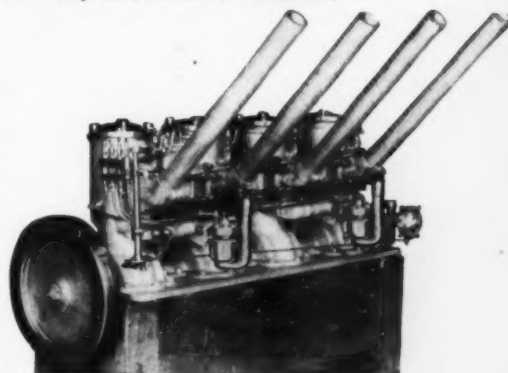
During her trial trip Dixie Junior was run at top speed for over two hours and showed better than 20 miles an hour; with a larger wheel and the motor limbered up she is expected to show a speed of 22 miles an hour. From the illustration, which was taken while running at full speed, it will be seen that she disturbs the water but slightly, which fact speaks well for the design of her under body. Captain Pearce, the designer of Dixie Junior and the pilot of the famous Dixie II, which won the Harmsworth trophy in the British International in 1908, is enthusiastic for the outlook of his latest production, and her owner, Mr. Fenner, is planning to enter her in many of next season's races.

Specific Gravities of Various Woods.

Many amateur boat builders find themselves at a loss to figure from the designs of a boat

monly used in boat construction. The actual displacement of any vessel is, of course, exactly equal to the number of cubic feet contained in the submerged portion, and the weight of the total amount of water displaced is equal to the total weight of the vessel. It can be seen, therefore, that the displacement of a vessel can be determined if the actual weights of the woods used in the construction of the hull, with their various specific gravities, are known.

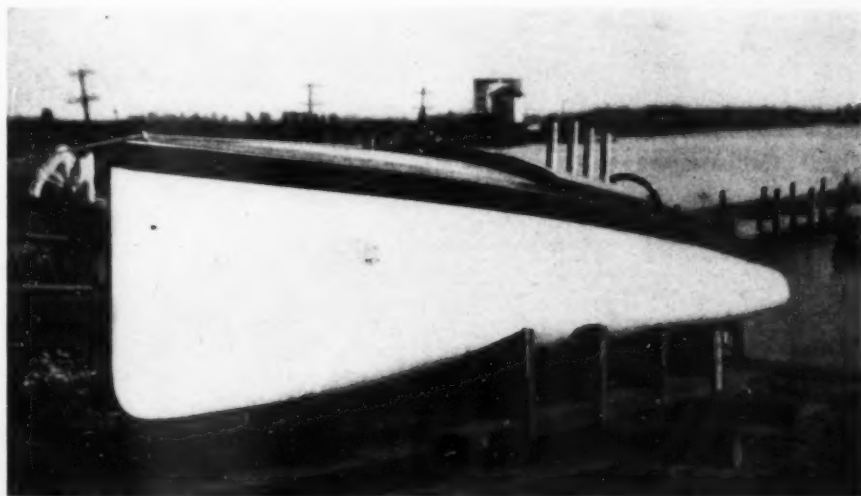
To assist in this determination we give below a list of the average specific gravities and weights per cubic foot of the woods most commonly used in hull construction:



The engine is conservatively rated at 16 horse-power.

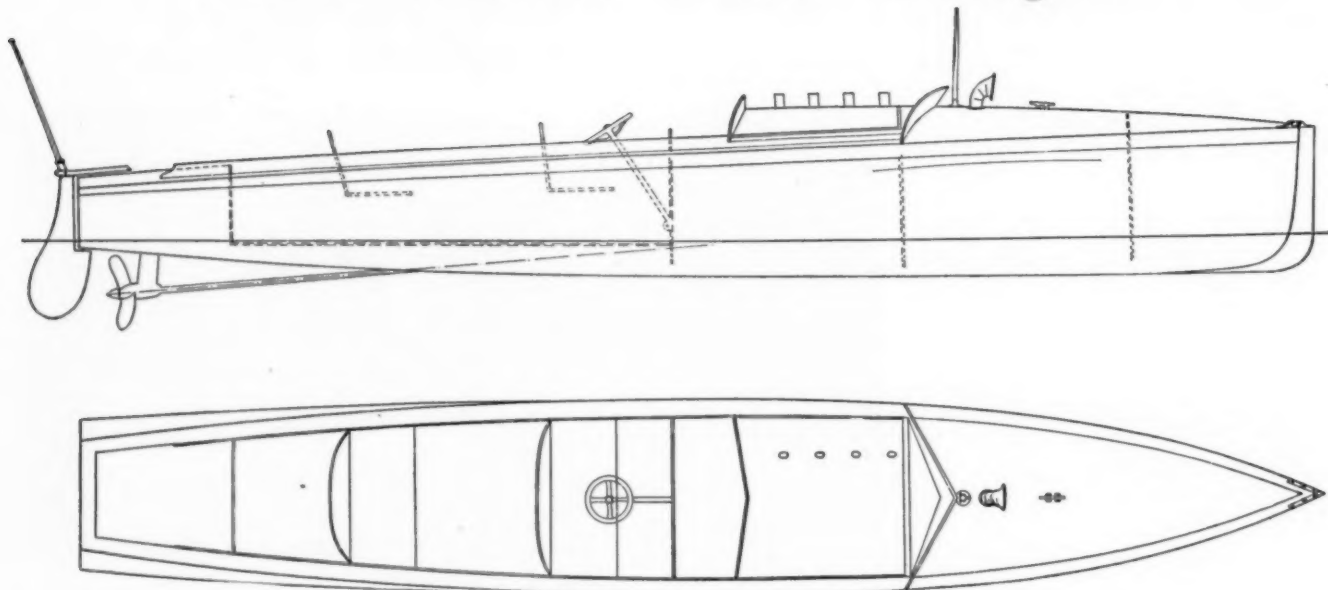
	Specific gravity	Weight per cubic foot, lbs.
Oak, white.....	.77	48
Oak, red.....	.74	46
Pine, white.....	.45	28
Pine, yellow.....	.61	38
Spruce .....	.45	28
Mahogany .....	.81	51
Fir .....	.59	37
Hemlock .....	.38	24
Cedar .....	.62	39
Birch .....	.65	41
Cherry .....	.66	41
Cypress .....	.53	33
Poplar .....	.48	30
Teak .....	.82	51

Since a cubic foot of fresh water weighs 62.35 lbs. and a cubic foot of salt water weighs 63.97 lbs., when the number of cubic feet of wood used, and the specific gravities are known, the displacement of the hull for either salt or fresh water may be figured with a fair degree of accuracy.



Dixie Jr. in the cradle just before being launched.

New Motor Boat Designs.



Outboard profile and plan of Dixie Jr., the description of which appears on the preceding page.

Trunk Cabin Day Cruiser.

WHILE the raised deck cruiser has become, in most waters along the Atlantic seaboard, the prevailing type of cruising craft, the trunk cabin, with large drop windows, has so many points to recommend it for day trips and ferry purposes that it is reviving from its threatened extinction of a few seasons ago, and may today be found, in improved form, in many of the latest designs.

The rapidly-growing fleet of motor boats in the vicinity of Shelter Island received an addition last season in the shape of a boat of this description, designed by Tams, Lemoine & Crane, of New York City, and built at the works of the New York Yacht, Launch & Engine Company, of Morris Heights, New York City, for a member of the New York Yacht Club.

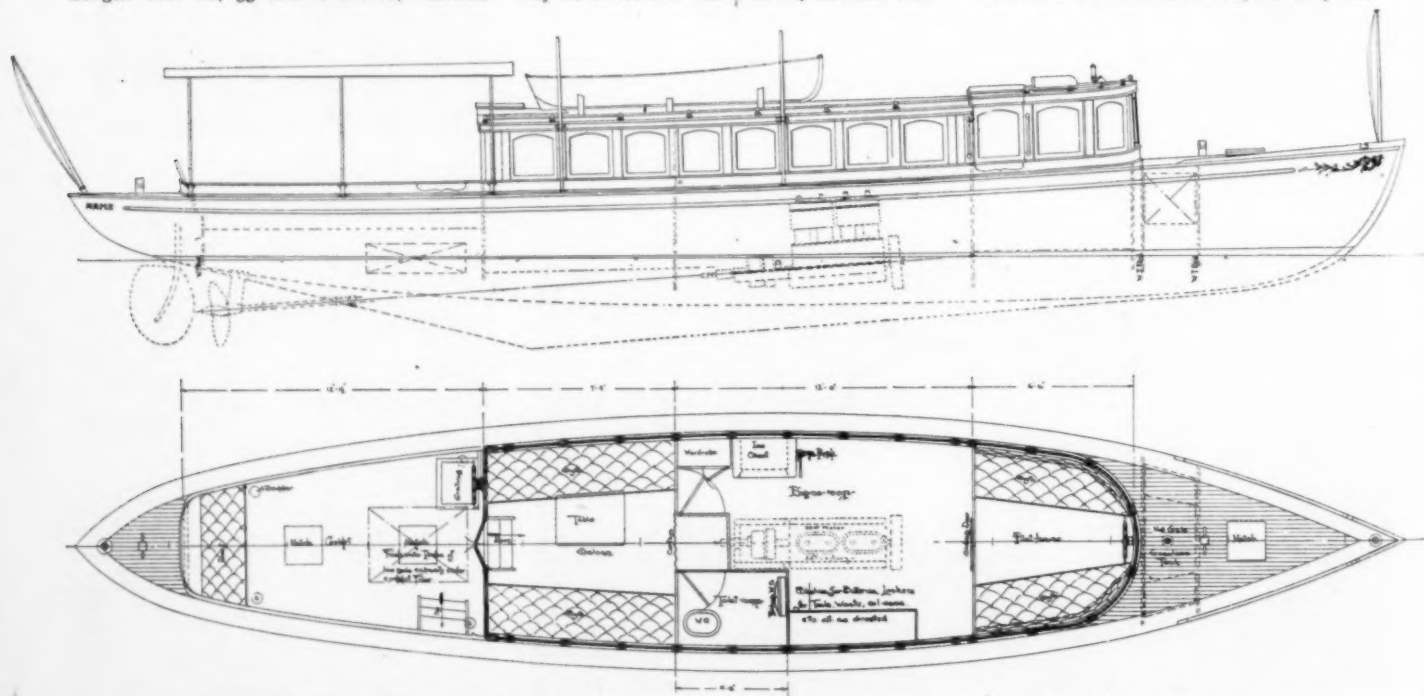
The accompanying plans show a roomy, comfortable boat of the following dimensions: Length over all, 53 feet 6 inches; extreme

beam, 10 feet 6 inches, with a depth amidships from side deck to top of keel of 4 feet 5 inches. Extreme draft is 3 feet 7½ inches. To meet the requirements for which she was designed, it will be observed that she is of the high-cabin type, with large windows and a forward pilot house, the roof of which is flush with that of the after cabin. She has a round bow and a canoe stern, and her 4-cylinder, 30 horsepower, 20th Century engine with reverse clutch gives her a speed of 12 miles an hour. This engine is situated well amidships and keeps the weight at about the point of greatest displacement, which makes her steady in rough water. Her cabin is divided into three compartments, and she has a large after cockpit, with a liberal amount of deck room forward.

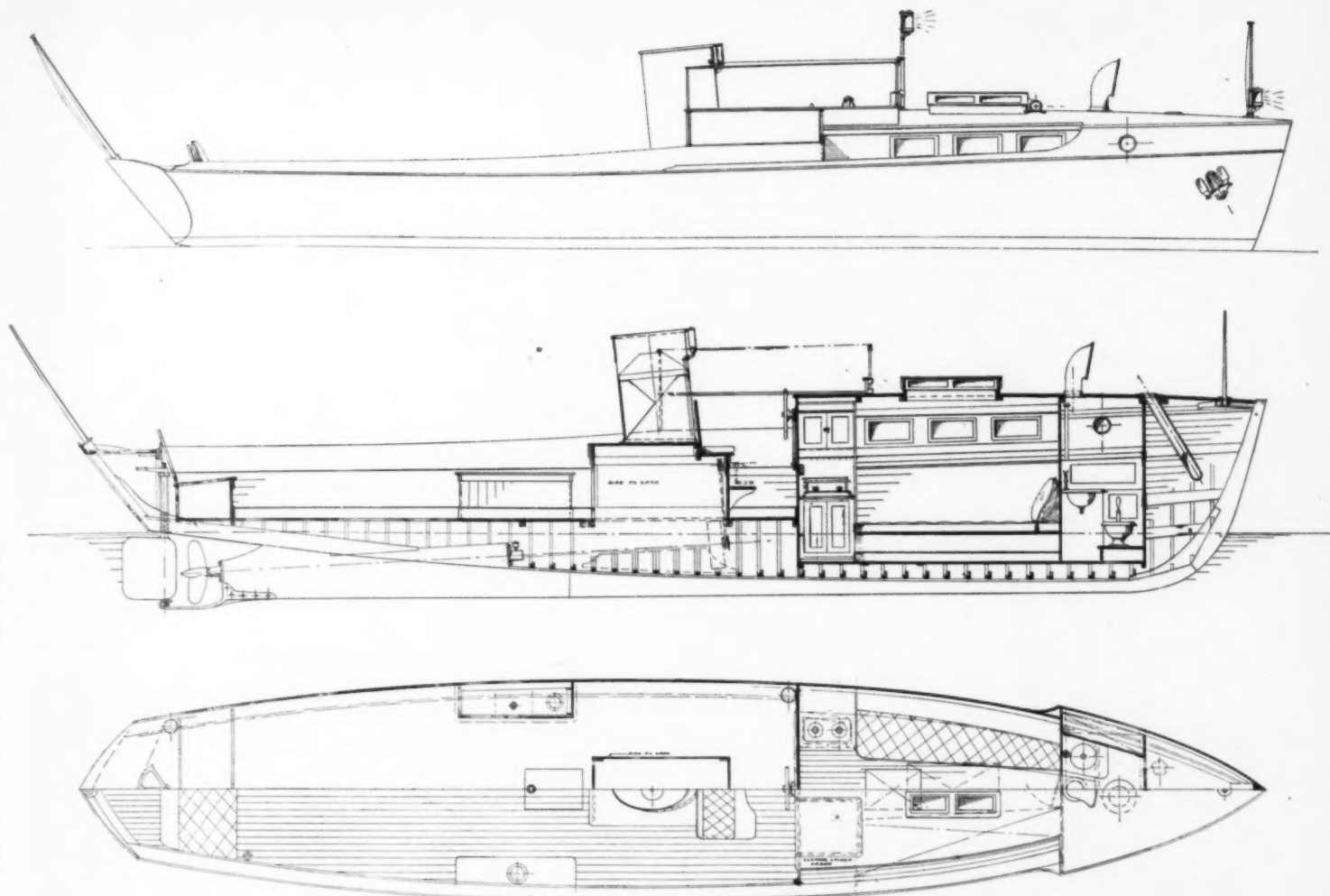
A hatch in the forward deck leads into a storage compartment. Just aft of the hatch are the riding bits, and aft of these a 160 gallon gasoline tank. Her pilot house is 6 feet 6 inches in length, with a sofa, which may be converted into a berth, on each side.

Aft of this is the engine room and galley, 12 feet in length, and separated from the pilot house by a sliding door in the forward bulkhead. On the starboard side of the engine room are shelves for batteries and lockers for tools and supplies, while on the port side are the wardrobe, ice chest and galley pump. Aft of the engine room is the saloon, 7 feet 4 inches in length, with a sofa on each side and a folding table. A central companionway leads from the saloon to the after cockpit, which is 12 feet 1½ inch in length, and is oval at the after end, with thwartship seat and lazy-back across the rear. The cockpit is self-bailing, with a storage hatch in the center and fresh water tanks of 100 gallons capacity under the forward end of the floor. A flight of three steps at the forward starboard end of the cockpit leads to the deck, while a raised grating just abaft the port side of the after cabin bulkhead gives a point of observation from which an auxiliary steering wheel may be used in fine weather.

Her hull is rather more substantially con-



Profile and accommodation plan of the 53-foot day cruiser designed by Messrs. Tams, Lemoine and Crane.



The trim 43-foot day cruiser designed by Messrs. Swasey, Raymond and Page of Boston.

structed than is usual in the average modern craft of her size and type. The keel, stem, stern, frame, etc., are of selected white oak. Her planking is yellow pine, and she has galvanized fastenings. The decks are white pine, and all deck trimmings and the cabin house are of mahogany. The high cabin drop-windows give excellent ventilation and plenty of light. Her shafting is of Tobin bronze, and her propeller, of manganese, has been designed especially for her by Mr. Crane. Her owner used her as a day boat, and, with this purpose in view, she was given a very liberal amount of cockpit area. Her cabins are comfortable, affording ample protection against the weather, and are so arranged that, should the owner desire, he can make short cruises with her. She carries a 16 foot dinghy as a

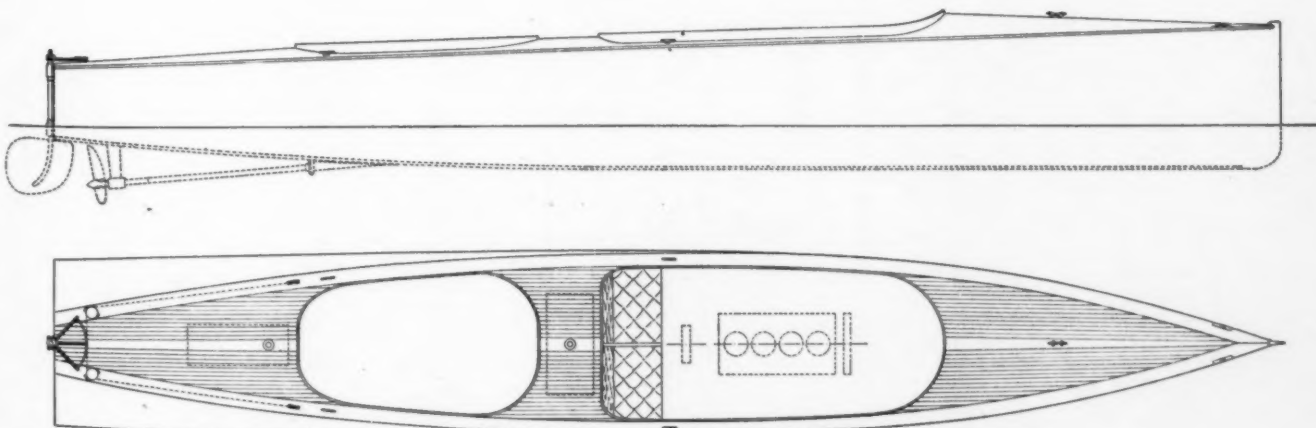
tender on chocks on top of the cabin house, with davits for swingout and lowering.

As will be noticed by referring to the plans, she has a generous amount of room in all her compartments; the pilot house may be used as a sleeping cabin for two people, the sofas extending under the deck, so as to give a berth of 6½ feet in length. The saloon or after cabin is large enough to accommodate two more, and the combination engine room and galley is particularly commodious, being so arranged as to give easy access to the engine from all points and plenty of room for the preparation of meals. By reason of its perfect ventilation and light, it is an exceedingly comfortable galley, even in the hottest kind of weather. One of her best features is the 12-foot cockpit, sheltered from the wind

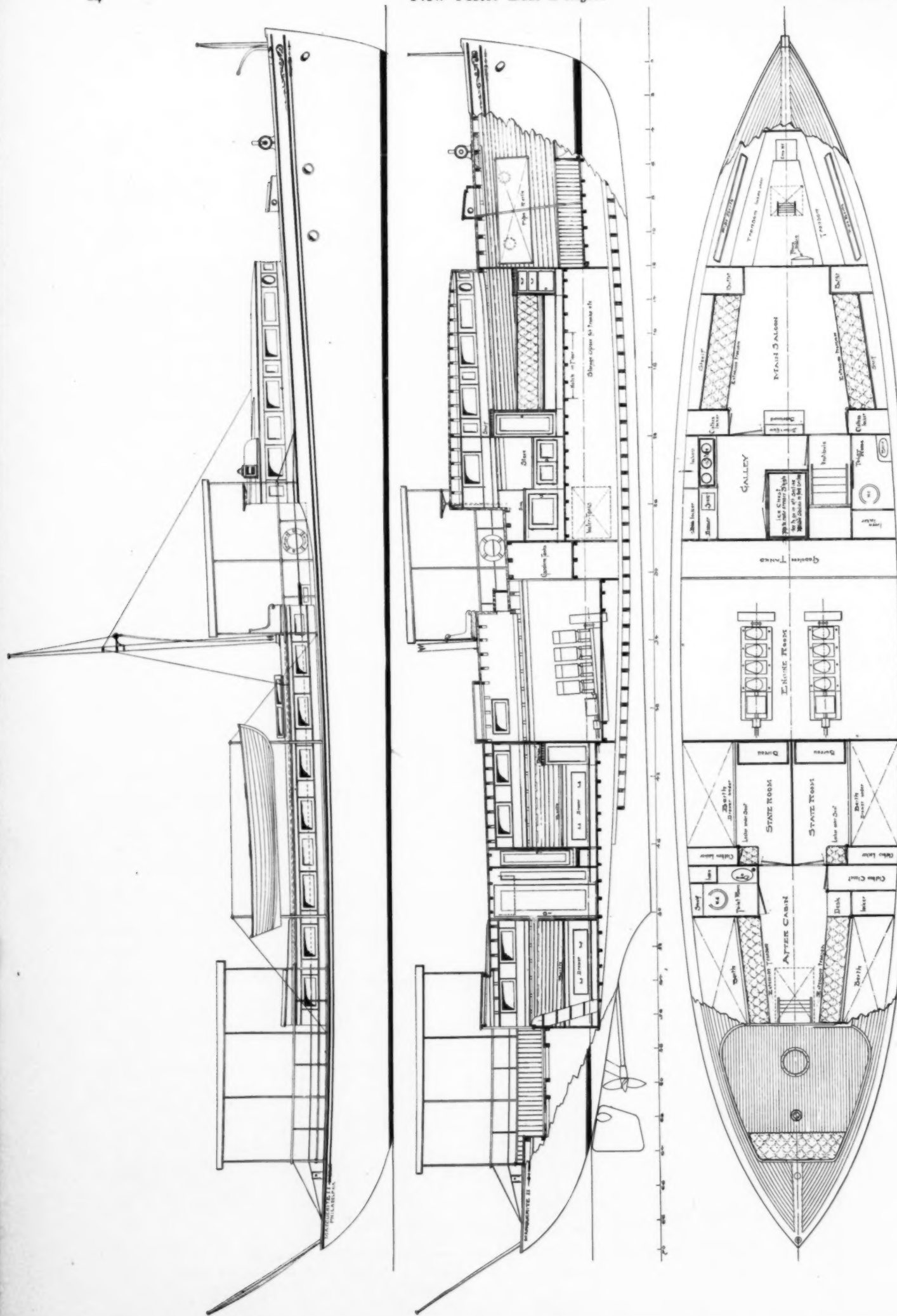
by the high cabin trunk and from the sun by an awning, with lazy-back thwartship seat in the stern and plenty of room for arm-chairs.

A 43-Foot Day Cruiser.

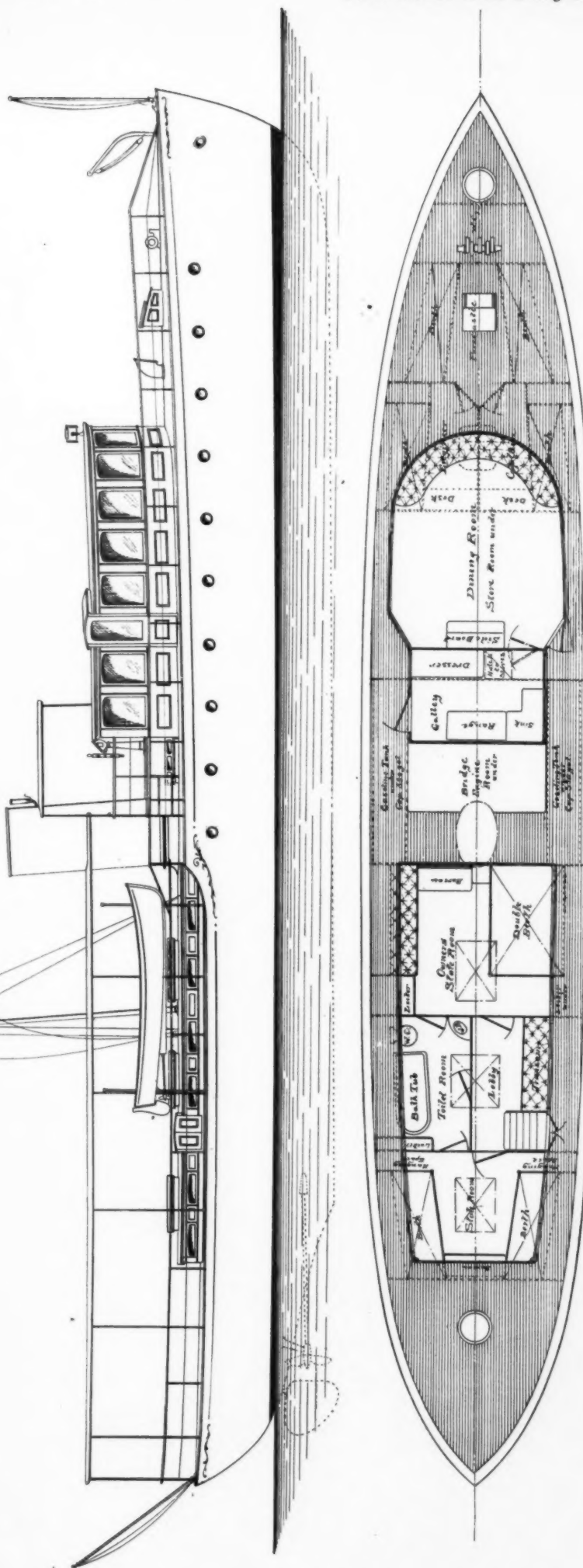
THE accompanying plans show a very attractive day cruiser, designed by Swasey, Raymond & Page, of Boston, for Mr. John Reilly, Jr., of Salem, Mass., for use on Moosehead Lake, Maine. She has a comfortable cabin 10 feet in length, with space for stove and ice-box, and accommodations for a party of three or four persons for short cruises. The cabin has head room of 6 feet 3 inches, with a skylight in the center. The stove is on the port side with ice-box under-



30-foot Racer, one of the latest designs of the Brighton Boat and Supplies Company.



Outboard profile and accommodation plans of Marguerite II, a 70-foot cruiser designed by C. D. Mower, a description of which appears on page 17.



Kalmia, the 76-foot cruiser designed by Messrs. Cox and Stevens, a description and photographs of which will be found on pages 18 and 19 of this issue.

neath and a cupboard in the rear. There is a large clothes locker, extending the full height of the cabin on the starboard side, and a toilet forward. The companion hatch is located on the starboard side. The engine and tanks are located in the cockpit, all odors of oil and burnt gases being thus shut out from the cabin.

There is a steering and controlling seat on the forward end of the engine box, forming a bridge, surrounded by a rail and weather cloth and covered overhead by an awning. A vertical brass steering wheel is placed against the bulkhead. The cockpit is over 20 feet in length, with seats on both sides under which are placed the gasoline tanks, of eighty gallons capacity each; there is also a seat across the stern. A fresh water tank of 30 gallons capacity is located under the raised deck forward.

One of the features of this cruiser is an arrangement in the stack for the purpose of keeping out rain and still allowing for plenty of ventilation. The boat is to be finished in teak, with a 25-50 horsepower Sterling engine, which is expected to drive her at a speed of about 12 miles per hour. Her dimensions are: Length over all, 43 feet 3 inches; length waterline, 38 feet 7 inches; beam, 8 feet; extreme draft, 2 feet 10 inches.

Thirty-Foot Racer.

THE thirty-foot racer, the plans of which appear on the preceding page, is one of the latest products of the Brighton Boat and Supplies Company, of Menasha, Wisconsin. She is built on the very latest speed lines and is of extremely light but rigid construction throughout. The seams are battened from the keel to a point above the waterline and the frames are reinforced and trussed.

While this boat can be supplied in sizes from twenty-eight to forty-five feet, the standard size in which it will be produced is thirty feet, and it is expected that with a light high speed of about 125 horsepower she will do between twenty-eight and thirty miles per hour.

75-Foot Havana Racer.

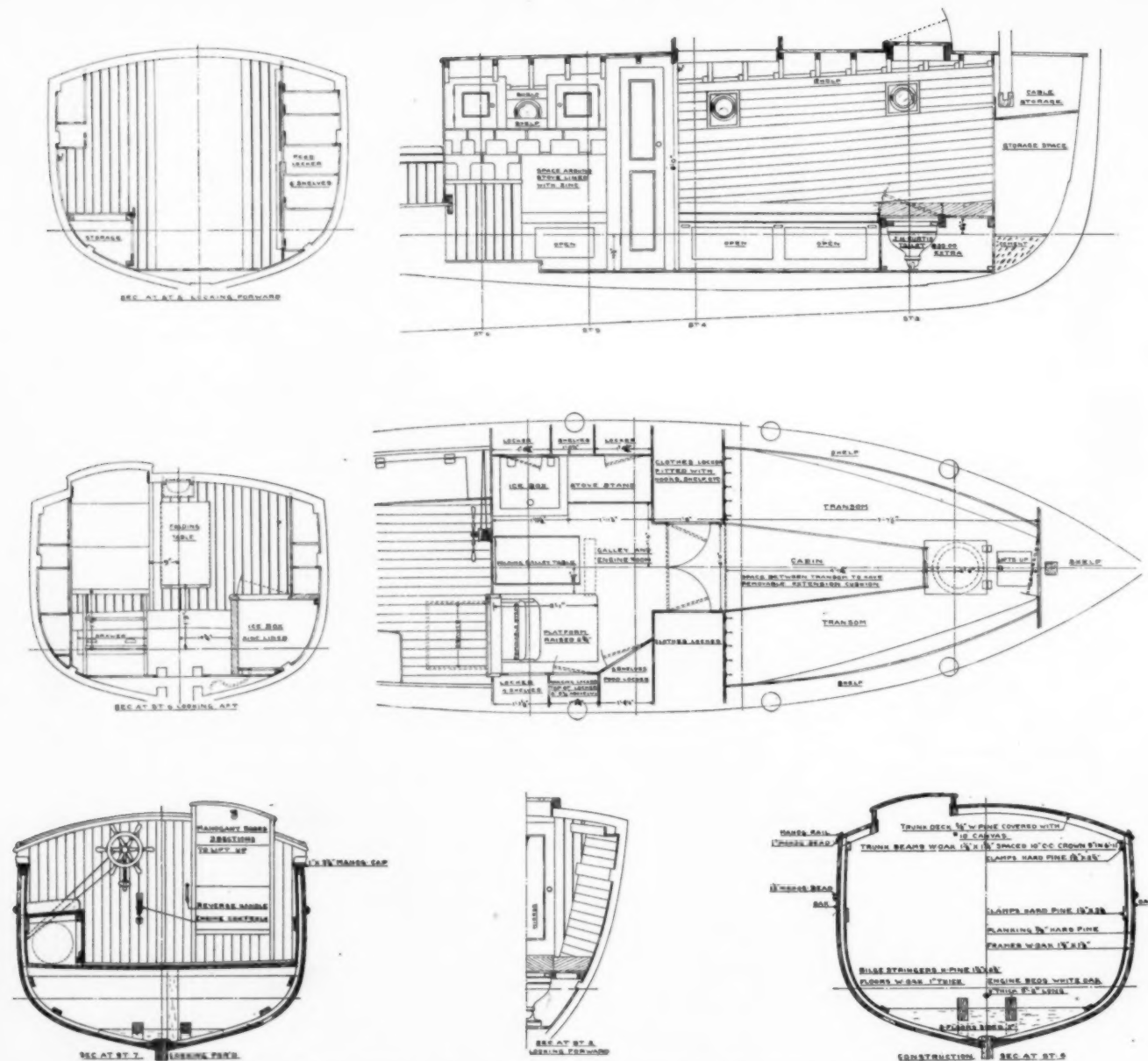
E. P. CHARLTON, of Fall River, Mass., is having a cruising power boat built at the Greenwich Yacht Yard, which he intends to enter in the race from Philadelphia to Havana. This craft has been designed by Whittlesey & Whittlesey. The new boat will be named Edamana and her chief dimensions will be 75 feet long, 14 feet beam, 11 feet depth and 5 feet draft. She will be equipped with two 50 horsepower Standard motors.

She will be heavily built so that she may be able to withstand such weather as she is likely to meet in off-shore cruising. The lead ballast will be placed outside and the deck fittings and interior furnishing will be of African mahogany. The hatches, skylights, spars and rigging will be strong enough to withstand a gale.

The saloon will be amidships. Aft of this will be a guests' state-room fitted with two berths. Then will come the owner's state-room, which will be the full width of the yacht. Forward of the saloon will be the galley, forward again the engine room, and the crew's quarters will be in the bow of the yacht. There will be seven feet head room in the cabins and the yacht is to be rigged as a yawl.

There are to be three tanks for gasoline, which will hold fuel to give the yacht a cruising radius of 1,000 miles at three-quarter speed. There are to be bulkheads between the bow and the engine space between the galley and the saloon and between the saloon and the quarters aft.

Mr. Charlton expects to cruise as far north as Nova Scotia with the new yacht in the summer season and in Southern waters in the winter.



Cross-sections and accommodation plans of the 27-ft. cruiser which appears on the opposite page.

THE design shown herewith is that of seven boats being built by Loring at East Braintree, Mass. The designs are by Ralph E. Winslow and the boats will be known as the "Homer 27-footers." They were designed with the idea of giving a good cruising boat at a moderate price and one that would afford comfortable accommodations for several persons for short cruises. They are to be of the raised deck type, 27 feet over all, and 24 feet 3 inches on the waterline; with an extreme beam of 7 feet and draft of 2 feet 7 inches. With the high freeboard and graceful canoe stern they should prove very seaworthy little boats and equipped with single cylinder, seven horsepower Eagle engines of 6 inch bore and 6½ inch stroke they should develop a cruising speed of at least seven miles an hour.

The cabin arrangement for boats of this length is exceedingly liberal. The cabin is forward with two full-sized berths provided with extensions, and ventilation is provided for by a large skylight and hatch with removable cover, besides the regular ports. The toilet room is well up in the eyes of the boat and there will be full head room throughout.

Aft of the cabin and on either side of the passage there are two roomy full-length clothes lockers providing ample hanging space for oil skins, and other needful apparel, and enclosed by full-length doors.

The engine room and galley is situated about

The Homer 27-Footer, a Popular Type of Small Cruiser.

amidships and like the cabin, has full head room. On the port side are a zinc lined ice-box and a stand for the stove and behind and above these are cupboards and shelves for cooking utensils and china. Over the engine there is a folding galley table which, when not in use, may be raised flat against the bulkhead. On the starboard side are three roomy lockers provided with shelves and drawers for the storage of provisions and clothing.

The steps leading to the cockpit are removable which considerably increases the available space in the galley, and behind them is a large drawer extending beneath the cockpit floor.

The after part of the boat is taken up by a large sized cockpit that will easily seat from ten to twelve persons with comfort. With the steering wheel and the control and reverse levers at the bulkhead on the port side of the cockpit, one person can easily handle the boat. Over the cockpit is a standing roof which may be enclosed with side curtains in wet weather.

The construction of these little cruisers will be very substantial; the keel, shaft log, skeg, and framework throughout will be of white oak. The frames varying in thickness from

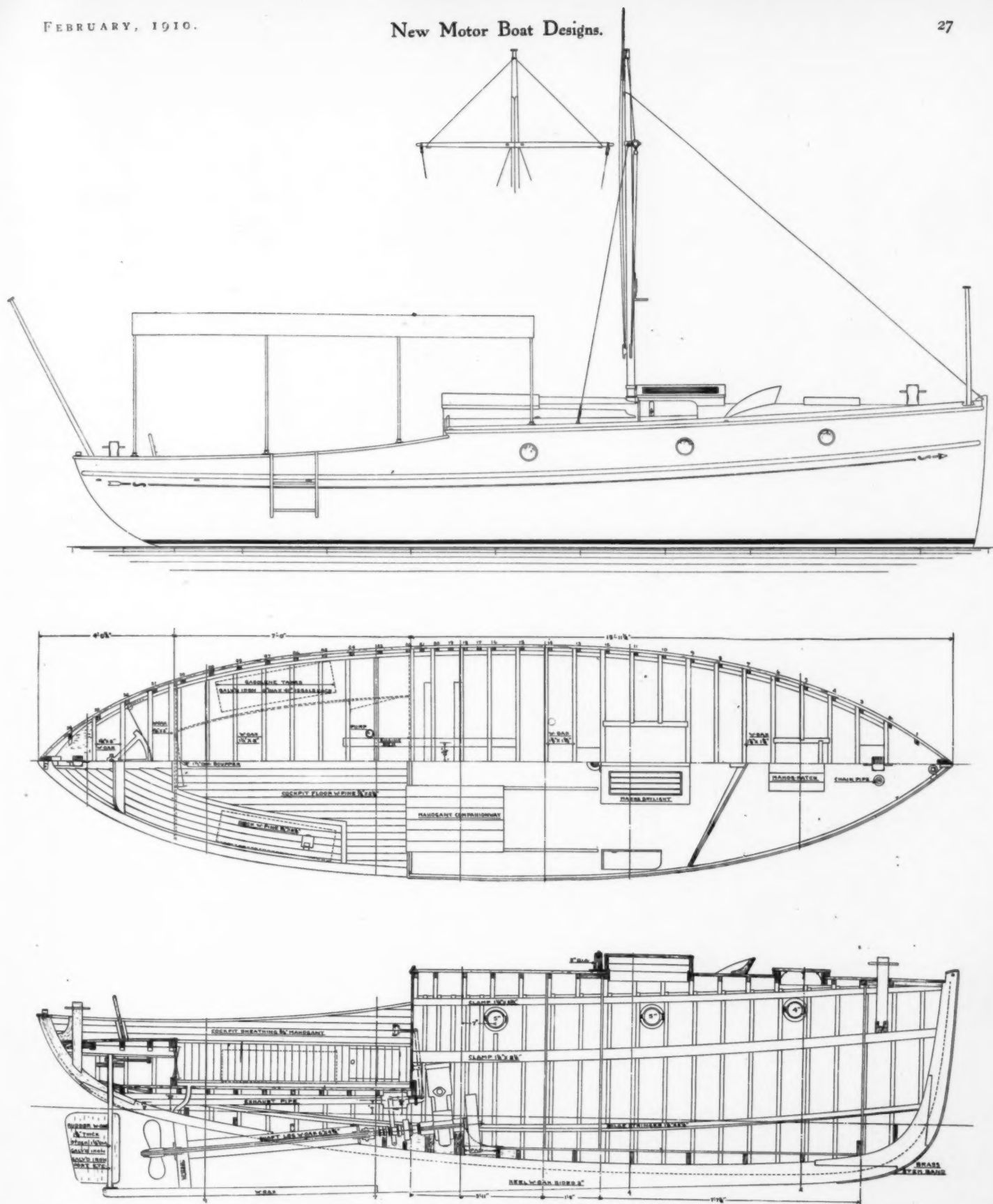
1½ x 1¾ inches to 1¼ x 2 inches, according to their position, those under the engine being larger and more closely spaced. The stringers and planking will be of hard pine and the latter will be of ¾ of an inch in thickness. The raised deck will be of ¾ inch white pine covered with No. 10 canvas which gives a strong and most durable construction. The deck aft and the flooring throughout will be of ¾ x 2½ inch white pine and the finish, including the cockpit sides and coaming, the quarter-round sheer strakes, hatch covers, etc., will be in mahogany.

The gasoline tanks have a capacity of 15 gallons each and are placed one on each side beneath the cockpit's seats.

The boats will carry besides a flag-staff fore and aft, a single mast with yard which, besides adding to the appearance, may be utilized to carry an emergency rig.

These little boats are worthy representatives of a class that has attained enormous popularity along the coast and Great Lakes in the course of the last few years. No other class has approached it in this respect, as it combines in the smallest practical space all the necessary features of the boat for week-end and vacation cruising, or even for more pretentious cruising along the coast.

The first of these boats to be completed will be delivered to Edward Shaw, 2d, of Providence, a member of the Rhode Island Yacht Club.



Outboard profile and construction plans of the 27-ft. cruiser designed by Mr. R. E. Winslow for Arthur P. Homer, of Boston.

57-Foot Raised Deck Cruiser.

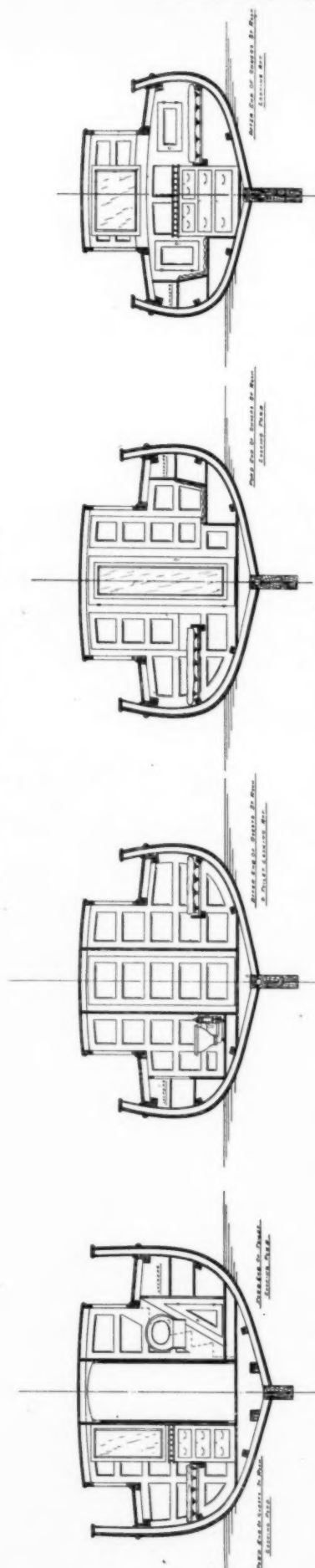
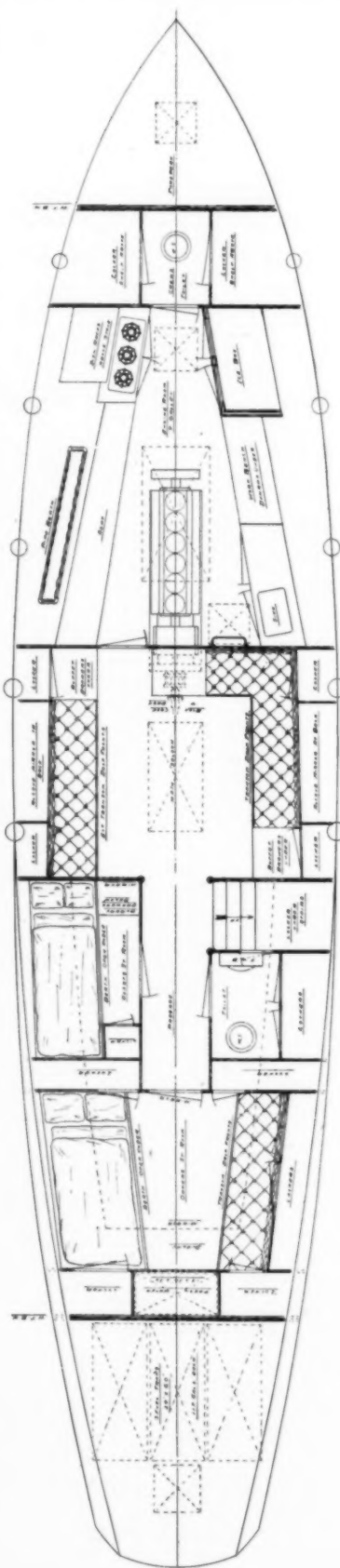
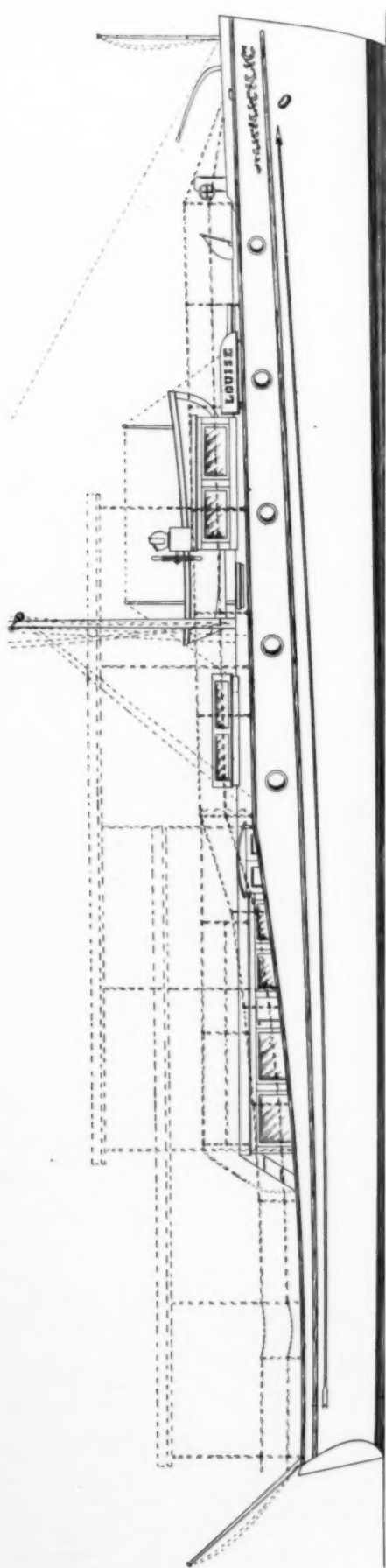
THE designs on another page show the outboard profile, construction arrangement, and accommodation plans of a fifty-seven foot cruiser, designed by Morris M. Whittaker, of New York, for Mr. F. A. Baer, of Paterson, N. J. This boat is now under construction and is to be launched next August.

She has a length over all of fifty-

seven feet, a waterline length of fifty-five feet, and beam of 12 feet. The arrangement shows the boat to be of the raised deck type, with motor, galley and crew's quarters located forward, main saloon amidships, and owner's and guests' state-rooms under the extension of the raised deck, where the maximum of light and ventilation can be obtained without interfering with the seaworthiness of the boat. A water-tight bulkhead separates the forepeak from the crew's quarters. The form is one

with wide flaring bows, good dead-rise to the midship and after sections, and a round transom stern, which is considered to be a very satisfactory form when good speed is required in connection with sea-going qualities. The specifications call for a strongly built hull, with special provision for securing longitudinal strength.

The owner's quarters will be finished in mahogany, oak and white enamel, and the engine room and crew's quarters in natural fin-

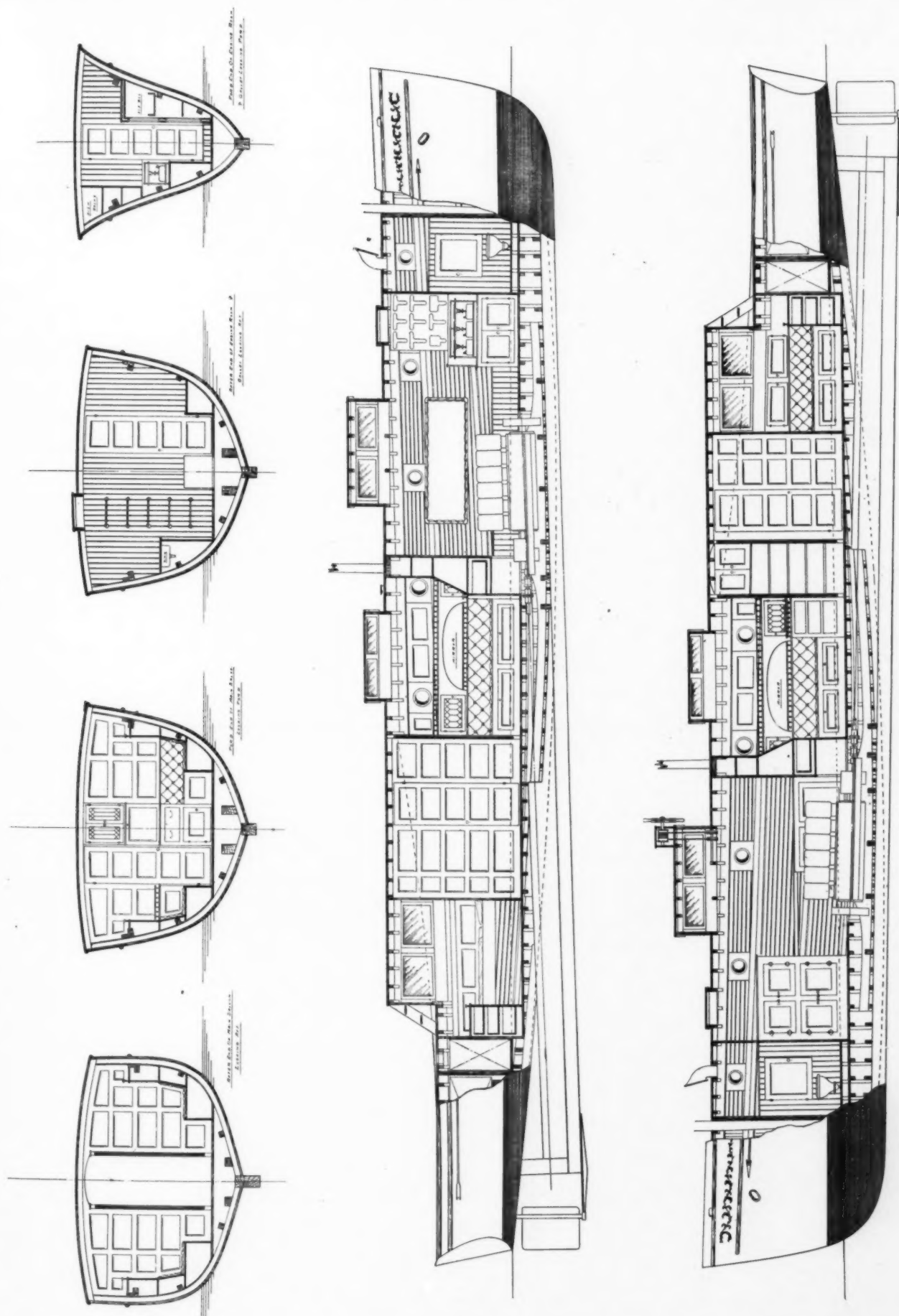


ish cypress. The frames are of oak $2\frac{1}{2} \times 1\frac{3}{4}$ inches, spaced ten inches apart. The planking is of rift grain cypress $1\frac{1}{4}$ inch thick, and the decks are of $1\frac{1}{4}$ inch pine. All the fastenings will be of copper or composition.

The motor is manufactured by the Lamb Boat and Engine Company, of Clinton, Iowa, and is one of their 6-cylinder, heavy duty type, developing 60 horsepower at 450 revolutions. It has a bore of $6\frac{5}{8}$ inches and a

stroke of 7 inches. The ignition is of the dual type, with make-and-break and jump spark system and high tension magneto. There is a separate dynamo for a lighting plant located on the starboard side of the engine

The outboard profile, accommodation plan and sections of the 57-foot raised deck cruiser, designed by Morris M. Whitaker, of New York. The forward sections and elevations appear below.



room. The main saloon is provided with a buffet, lockers, bookcase, and a desk, and has a head room of six feet and three inches. Comfortable lounging seats are arranged upon either side. The steering wheel is located on

deck amidships, and the motor control is extended to the wheel.

There are three fuel tanks, located aft, each having a capacity of 117 gallons. Immediately forward of the fuel tanks, and separated

from them by a water-tight bulkhead, is a fresh water tank with a capacity of 100 gallons. The engine is expected to drive the boat at a speed of a trifle better than twelve statute miles per hour.

One Design Racers for 1000 Islands.

A New Class of Speed Boats on the St. Lawrence River.

Twenty Twenty-Eight-Footers for the T. I. Y. C.

IN an effort to increase interest in power boat racing, the Thousand Islands Yacht Club, of Alexandria Bay, New York, some months ago appointed a committee to devise some plan for holding races which would be more interesting from the spectators' as well as from the contestants' point of view. The committee has held a number of meetings and recently arrived at a decision which will give a fresh impetus to power boat racing upon the St. Lawrence as well as elsewhere. The plan decided upon embodies the selection of a so-called "one-design class," which is to be used for at least four years beginning with next summer. These boats are to be made from the same drawings and are to be of the same length and beam, made by the same builder and equipped with the same motor. They are to be as nearly alike as possible in every detail.

The selection of the design of the boat was left to the committee, subject to the approval of those who should subscribe for the boats, but it was decided in the beginning that once the design was established, no change whatever in specifications or equipment should be made during the next four years. The specifications were agreed upon by the committee and the first subscribers for the boats were allowed to decide upon the design of the boat

and the make of the motor; this agreement was to be binding upon all later subscribers.

It was urged by the members of the club as well as by the committee appointed that the boat should in no sense be a racing machine, but should be of moderate length with generous beam, and designed for a broad range of general utility, thereby making it useful as a pleasure boat even if the class should be changed after the expiration of the four year period. It was admitted by all concerned that the lack of interest in racing is entirely due to the fact that the relative merits of all the entries are so well known that the outcome of every race is a foregone conclusion. With this new plan for racing an element of uncertainty will prevail, as the outcome of each race will depend entirely upon the skill of the operator, the condition of his motor, and superior boatmanship on the part of the crew, and not upon the amount of money an owner is willing to spend for a racing boat.

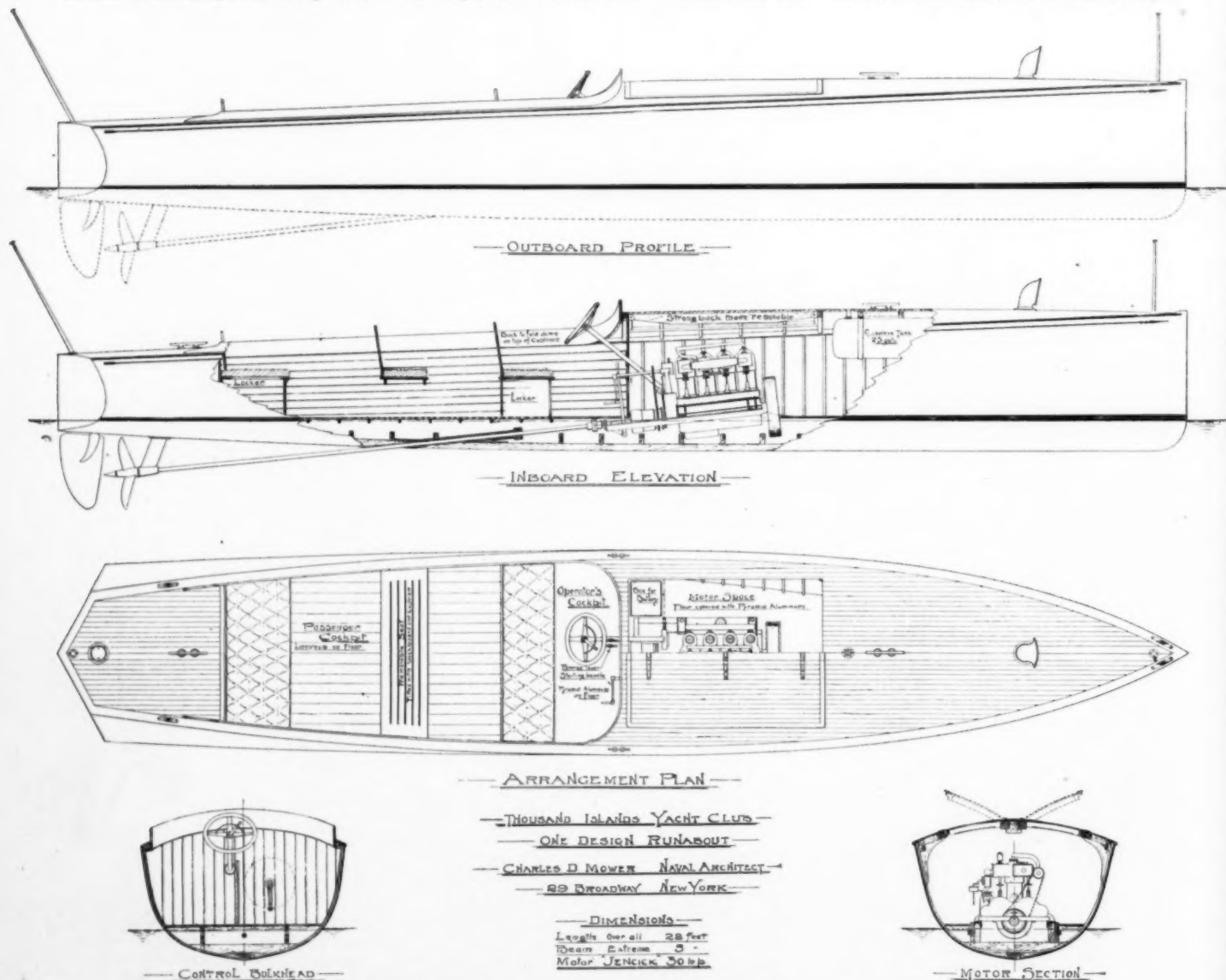
Races for these boats are to be held at some point on the St. Lawrence River every Wednesday and Saturday throughout the summer for cups of moderate value. During the Gold Cup Races, usually held some time in August, these races will terminate in a final heat for six or eight of the boats which have made the best

scores in the semi-weekly races. This final heat is to be for cups of a greater value.

The committee at first received specifications from many naval architects, but their original plan of securing bids upon fully equipped boats was given up and it was decided to retain the naval architect whose plans, in the estimation of the committee, were best suited to their needs, and to search the field of engine manufacturers for the best motor for their purpose. When the design of the boat and make of motor had been decided upon the committee submitted the plans and specifications to prominent boat builders for prices. From this list the builder was selected. Accurate specifications were sent out and in every instance the highest quality of material was specified.

It was decided to accept only twenty subscriptions for these boats, and the first ones to comply with the conditions of the agreement sent out to members of the club were privileged to subscribe, the subscriptions being accepted in the order in which they were received.

The type of boat selected, designs for which are by Mr. C. D. Mower, of New York, and are shown herewith, is to cost, complete, \$1,400. It will be noted that the stem and the stern form vertical lines, thus giving the



Plans of the One-Design Racers, by Charles D. Mower, for the Thousand Islands Yacht Club.

length over all, and the waterline length, the same dimensions of twenty-eight feet, and as the extreme breadth is five feet, it is apparent that the design will prove most useful for other purposes than racing. The specifications call for a keel and stem of white oak; transom of African mahogany, frame of white oak or selected American elm, flooring of white oak, clamps and bilge stringers of clear spruce or fir. The engine is to be set upon keelsons of yellow pine of generous dimensions; the planking is of selected half-inch cedar, with oak deck beams and mahogany plank sheers, decking and coaming. The floor of the cockpit is of half-inch pine and the cockpit is sealed with mahogany battens. The engine cockpit and operator's cockpit are to be covered with pyramid aluminum. The seats and backboards in the operator's cockpit, and the engine hood, are of mahogany, and deck plates, ventilators, and all trimmings are of brass. The rudder is of Tobin bronze.

The motor is a four-cylinder, four-cycle Jenck, of 30 horsepower, having a bore of four and one-half inches and a stroke of five inches. There is a double ignition system consisting of a Bosch magneto and storage battery. The carburetor is a "G and A." The gasoline tank is located forward of the engine under the deck and has a capacity of twenty-five gallons.

Every effort has been made to have these boats built as nearly alike as possible and with this end in view the entire equipment of each boat was placed in the specifications, so that every crew has a list of what must be carried, including such equipment as mahogany flagpoles on bow and stern, running lights, anchor with one hundred feet of manila cable, boat hooks, life preservers, etc. The boats are intended to cross the line at exactly the same weight which, including the crew, will be approximately 1,850 pounds.

It is not the intention of the racing committee in bringing forth this new "one design class" to discourage the building of larger or faster boats. Racing upon the St. Lawrence, as in many other places, has reached a point where the majority of fast boats are outclassed each year by the entrance of new fliers into the field, and while these new boats furnish considerable interest at the first of the season, before many races have been held the outcome of the season's events can easily be foretold. This new design class, being

limited to twenty boats, will not overcome the desire on the part of human nature to own the fastest boat on the river, but will merely add to power boat racing the interest which it has heretofore lacked.

The racing committee has under advisement a plan for providing the crews of the various boats with uniforms of brilliant and distinctive colors, which will allow their relative positions to be easily distinguished throughout the whole course. It is to be hoped that the Thousand Islands Yacht Club has solved the problem of placing power boat racing upon a practical basis, and enthusiasts from all over the country will watch the results with much interest.

New Experimental Launch for Technology Institute.

PROF. CECIL H. PEABODY of the Massachusetts Institute of Technology has designed a 40-foot launch which is being built by Stearns & McKay at Marblehead. This launch is for the study of propulsion, and the funds for its maintenance have been provided by Dr. Charles Weld of Boston, who is a well-known yachtsman.

In order that the investigations may be of a practical nature, directly connected with the actual conditions of ship propulsion, the model is being patterned after the United States steamship Manning, and will be on a one-fifth scale. The choice of the Manning as a prototype for the experiments is made because of a series of progressive speed trials made under Prof. Peabody's direction over the measured mile course at Southport, Me. These trials on the Manning were authorized by Capt. C. F. Shoemaker, chief of the division revenue service, and were reported to the Society of Naval Architects and Marine Engineers.

After the relations between the actual trials of the ship and those of the navigable model have been established, a certain basis of determination will be furnished by which it will be possible to determine what may be expected of a full-sized ship.

The department has been promised the co-operation of the model basin at the Washington Navy Yard and preliminary tests are to be made there very soon on a 20-foot model

with a propeller 16 inches in diameter.

The model to be used is being built at Marblehead and the propulsion machinery has already been designed. The latter will consist of a gasoline electric generating set and a motor geared for experimental work, so that the conditions may be controlled over a range and the measurements of power may be simple and accurate. The machinery can also be easily transferred to other hulls as the work progresses.

Upon the completion of the experiments with the model built and engined to correspond with the prototype, various forms of locations of propellers will be experimented upon, including twin and triple-screw propellers, especially of the type used at present with marine turbines. Hulls of various other models of ships also will be built to extend the range of the experiments.

According to Prof. Peabody the problem of propulsion is divided into three distinct parts: First, the resistance of the ship to the force required to maintain given speed; second, the power applied to and delivered by the propeller, and third, the effectiveness of the combination of propeller and ship.

The particular problem chosen by the authorities for investigation is the complex effect produced by placing the propeller at the stern of the ship. Placed in this position, both from necessity and choice, the propeller takes advantage of the wake, but it also disturbs the natural flow of water and increases the resistance considerably above what the pull on a tow rope would be.

Another important problem to be investigated will be the steering and maneuvering, including practical work in rough and stormy seas. As this field has received but little attention in the past, much new and valuable information will be acquired.

This proposed method of investigation has the advantage that a proposed design may be tried on a small and inexpensive scale simulating all the conditions of actual service, including the performance of the ship under adverse weather conditions. After satisfactory conditions have been attained by the use of the model, the dimensions and conditions can be determined for the full-sized ship by the theory of mechanical similitude.

It is planned by Prof. Peabody and his colleagues to use the equipment for original research during the coming spring and summer.

How to Build a Motor Ice Boat.

By J. Eddy Chace.

FRAME.

IF you live in the northern section of our country or in Canada, where the rivers and lakes freeze over in the winter, and have an engine resting up from its summer duties, you cannot help being interested in motor ice boating, a comparatively recent sport that gets you out in the open, puts your motor to work and is unrivaled for good fun and speed.

To build an ice boat is not such a difficult or unreasonable task as at first thought it might seem. Ice boats for sailing have proven successful as a sport and not long since a noted aerial navigator drove a motor ice boat at phenomenal speed on the frozen Hudson River.

In presenting this subject to the readers of MOTOR BOATING, the construction of the boat will be taken up in a general way only, giving an idea as to what is required and leaving to the builder the working out of minor details.

Owing to the small amount of friction to be overcome in driving a boat of this kind, very little power will be required, a six or eight horsepower engine being ample for installation in an 18-foot boat driving it at least twenty-five to thirty-five miles per hour, and carrying two people.

Referring to Figs. 1 and 2 it will be seen that the frame consists of two timbers running the entire length of the boat. These should be 4 inch by 4 inch hard pine, tied by 3 inch x 4 inch hard pine cross pieces at either end and center, tenoned, mortised and pinned together firmly. Two pieces 4 inch x 5 inch for supporting the runners, can be bolted to the longitudinal pieces about 3 feet and 4½ feet from the forward and after ends respectively. To form the flooring, one inch matched boards should be nailed or screwed to the frame. Just back of the water tank, seat and gasoline tank, partitions should be made with ½ inch boards. White ash ribs ½ x 2 inch, spaced 12 inches apart, will be sufficient for supporting a light cedar or other wood covering. Hatches placed as shown will give easy access to the working parts of the engine, tanks, etc. The cockpit, containing seat and foot board should be located well forward, as shown in the illustrations. To facilitate cranking of the engine, the seat must be loose or hinged.

RUNNERS.

In order that the runners offer the least resistance possible to the ice and do not cut deeply, they should be double and arranged to

rock freely on pins driven through the supports as shown in Figs. 4 and 5. The blades can be made of soft steel ¾ inch wide by 2½ inches deep and 18 inches long. Iron angle supports ½ inch thick by 2½ inch width, riveted to a ¾ inch x 2½ inch iron back piece, will serve to keep the runners in position. This back piece on the steering runner should be made at least 24 inches long to give a good leverage when operating the steering wheel. At its center a 1¼ inch cast iron pivot must be fastened firmly. This piece will project up into a heavy flanged iron socket or bearing fitted tightly in a 2 inch hole bored in the cross timber. A separate iron plate set into the cross beam and resting against the flange of the pivot will form a good bearing for the runners. To strengthen the cross beam, which would otherwise be greatly weakened by this arrangement, side plates must be bolted into position as shown in Figs. 4 and 5. The faces of the runners resting on the ice should be ground or filed flat but with the inner edges of each pair of the forward runners about 1/16 inch higher than the outer edges. See Fig. 4. This will bring a greater part of the load upon the outer edges and when making turns with the boat, one of each pair of forward runners will act as cutting edges, tending to prevent

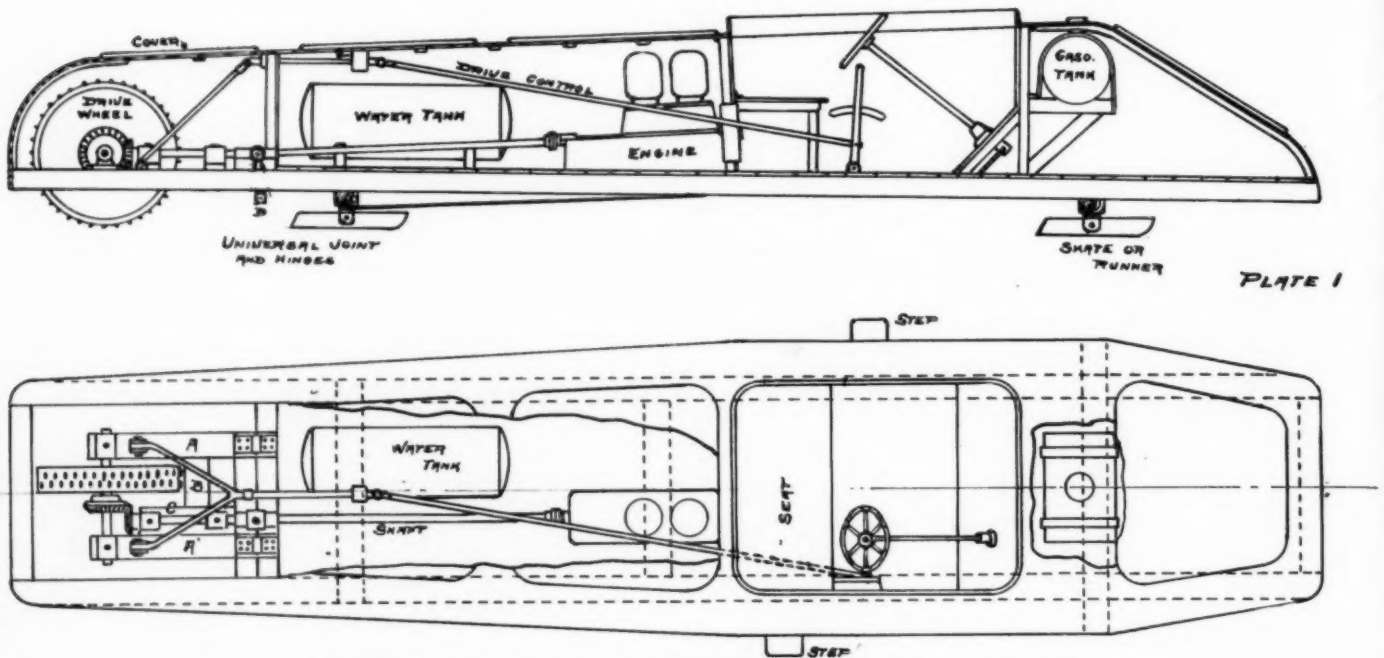


Fig. 1 and Fig. 2. Elevation and plan showing construction of motor ice boat.

ENGINE.

The engine for driving a boat of this construction should be water cooled. It would be convenient to have a reverse gear, which could be used in stopping the boat by turning the drive wheel backwards on the ice. If a reverse gear is not to be had then a hand or foot brake bearing against the ice should be attached. This is not shown in either illustration. Control rods from the reverse gear, carburetor and spark lever, lead to cockpit and levers on steering wheel. (Makers of motor boat control apparatus carry a line of steering wheels suited for installations of this kind).

The gasoline tank can be conveniently located just forward of the cockpit as shown in Fig. 1. It should be placed as high as possible so that the fuel will flow by gravity through small iron piping to the carburetor. A tank holding 10 or 15 gallons is ample for a boat of this size.

A water tank may be placed just back of the engine. This should be of galvanized iron, holding about 25 or 30 gallons and fitted with a vent pipe to allow the escape of any pressure which may be generated in the jacket of the engine. The suction pipe will connect to the engine water pump and the discharge can be led back to the tank through a radiator or cooler made up of three or four 10 to 12 foot pipe lengths running forward and aft, connected at each end by half-turn elbows and fastened to the bottom of the boat.

DRIVE WHEEL.

Just back of the water tank, a 4 inch x 5 inch cross piece should be placed in position as shown in Fig. 2. Heavy hinges made up from $\frac{1}{2}$ inch x 3 inch iron can be bolted to this piece, and to the two 4 inch x 5 inch pieces, indicated as A and A', Fig. 2, which support the drive wheel shaft bearings. Brace piece (B) and bearing support piece (C) must be bolted to A and A' so as to make the whole hinged section very rigid.

In starting up

the engine or lifting the drive wheel clear of any obstruction, it is necessary to have some means by which it may be raised quickly. For this reason it is best to hinge the wheel supports and arrange a drive control rod as illustrated in Figs. 1 and 2, which will have forked or movable joints and the upper part of which will slide through bearings attached to the under side of the housing and then down to a control lever placed in the cockpit.

On the under side of pieces A and A' and about 12 inches from the hinge center line, heavy steel springs should be fastened to assist in holding the drive wheel on the ice and returning it quickly when the wheel passes over rough places. One end can be fastened to the block indicated by (D) in Fig. 1.

The drive wheel for a boat of this size need not be over 24 inches diameter and $4\frac{1}{2}$ or 5 inches face. It can be built from any ordinary flat face cast iron pulley providing there is sufficient stock on the hub for cutting of a keyway which will hold a key fixing the pulley to the drive wheel shaft. Spaced approximately every 2 inches around the circum-

ference will be two rows of cogs or spurs. These should be staggered as shown in Fig. 2, of cast iron 2 inches long, 1 inch high, and wedge-shaped. Two $\frac{3}{4}$ inch soft steel pins can be screwed into the backs of each spur which should be about $\frac{3}{4}$ inch thick at the base, then passed through holes drilled in the rim of the wheel. To hold the spurs in place, each hole should be countersunk slightly on the inside of the rim and the rivets headed over.

Cast iron bevel gears keyed to the drive wheel shaft and engine shaft extension will transmit power from the engine to the drive wheel spurs. With the engine running at about 750 r.p.m. and a bevel gear reduction of 1 to 2 (or 5 inch and 10 inch diameter gears), the drive wheel will run at 375 r.p.m. Allowing for slip the boat will travel about 25 miles per hour with this gear reduction. With a slow speed engine this ratio can be reduced to give the same or even greater traveling speed. The drive wheel may be increased when a higher powered engine is available.

To connect the engine shaft extension mounted on piece C, a universal joint must be used as shown in Fig. 2. The center line of this joint and the two hinges described above must coincide so as to allow the free movement of shaft and at the same time keep them in exact line. Great care should be taken with this alignment. It will also be necessary to fasten cast iron collars on both shafts next to the bearings to keep them in a fixed position. A sight feed oil cup should be placed on each bearing.

The storage battery, spark coil, etc., can be placed beneath the deck in the cockpit where they will be within easy reach and away

from flying particles of ice or moisture.

Taken as a whole a boat of this description can be fitted up very much as would be the case with a more expensive auto boat and yet the arrangement as shown by the plans is convenient and affords comfort and ease of operation.

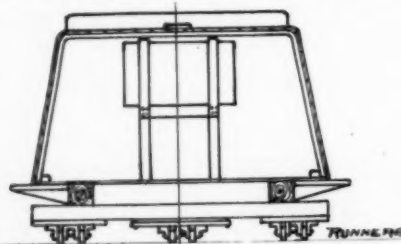


Fig. 3. Cross section at gasoline tank.

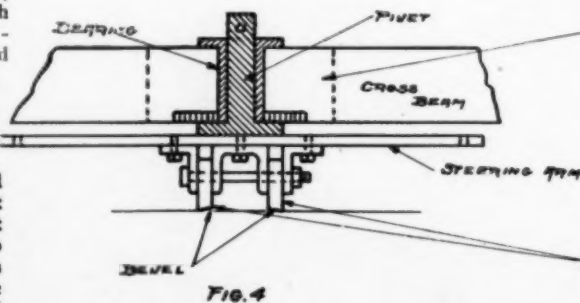


Fig. 4

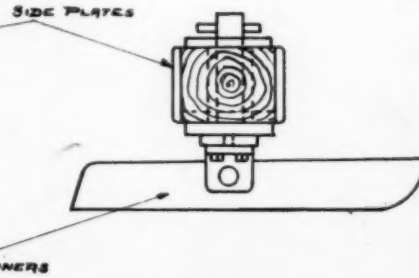
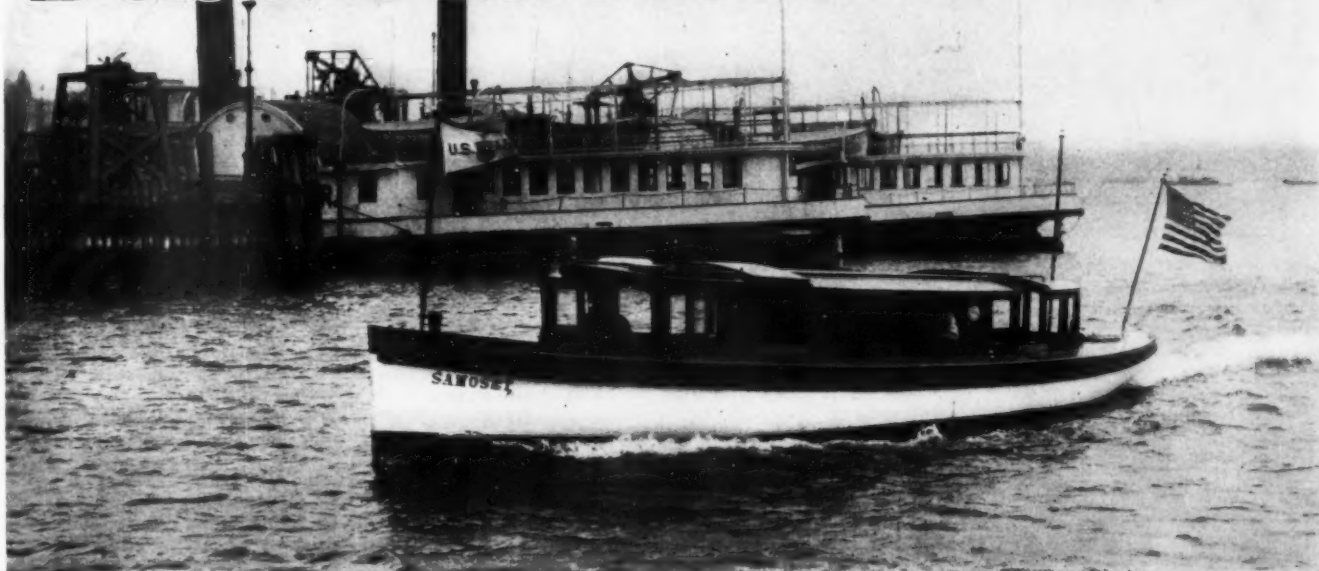


Fig. 5

STEERING RUNNER

Fig. 4 and Fig. 5. Details of the steering runner.

Business Motor Boats



Samoset, the 40-footer of the Bureau of Immigration, was originally an alcohol vapor launch.

The Federal Motor Boats Stationed in New York Harbor and its Vicinity. The Part They Play in Transacting the Government's Business.

By Joseph B. Baker.

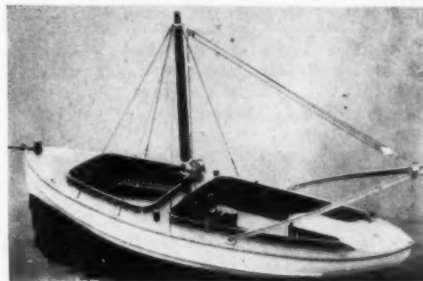
IN the last issue of *MOTOR BOATING* an account was given of a number of motor boats employed in the waters of Greater New York in various activities of the Municipal Government. The present article will deal with some of the vessels of this type in use at the Port of New York by certain departments of the Federal Government, viz.: The War Department Engineer Corps, and the Quartermaster's Department, U. S. Army; the Department of Commerce and Labor, Bureau of Navigation and Immigration and the Treasury Department, Customs Service.

The advantage of constant readiness for service possessed by small vessels of this type for the work of the City of New York, and the advantages of greater economy in layout, cruising radius, speed, etc., were briefly pointed out in the former article. The same ad-

vantages obtain in equal or greater measure in the work of the Federal Government in this busy port; especially in the work of the Customs Service, in the protection of the harbor by the Engineer Corps, and in the regulation of anchorages and tows by the Bureau of Navigation.

The Quartermaster's Department, U. S. Army, has a fine 60-foot motor boat, the Lieut. Ward Cheney, used by the Commanding General, Department of the East, Governors Island, New York Harbor. This type of vessel is known as an artillery district commander's launch, and is one of four gasoline equipped vessels in the Quartermaster's Department, built early this year by the Matthews Boat Company, Port Clinton, Ohio, and allotted to stations on the North Atlantic coast. They are all named after army officers who died of

wounds received in the Spanish War and in the Philippines. The Cheney is 60 feet long, 12 feet beam and about 4 feet draft, and is



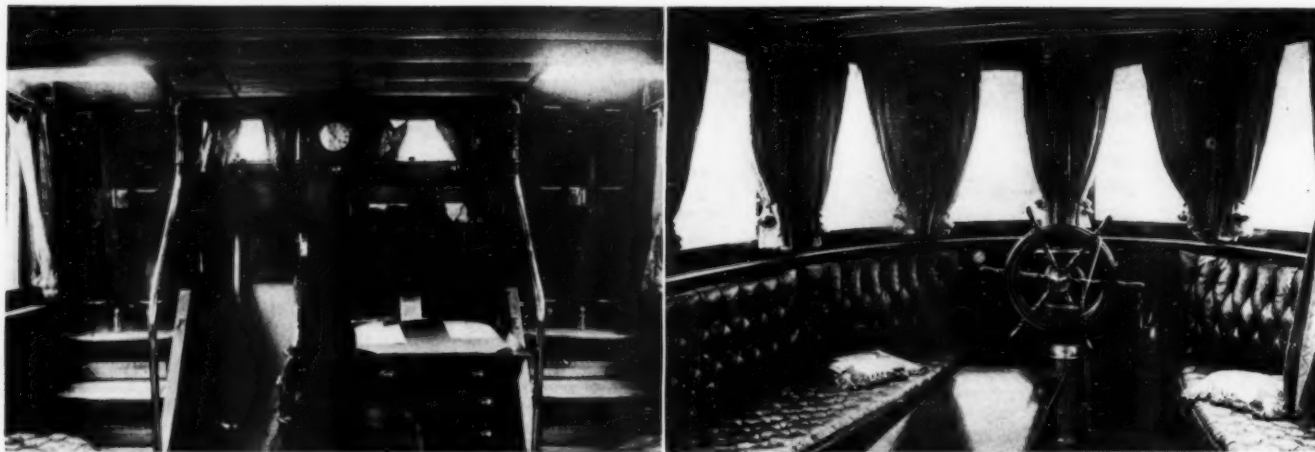
The interior arrangement is unique.

an unusually strong boat, having a displacement of about 25 tons when in service trim. She has a cabin or pilot house forward and a toilet room annexed, both luxuriously finished in mahogany with fine upholsterings. Another toilet adjoins the troops' cabin, and a hot water heater in this cabin supplies the radiators throughout the boat. There are two extra wide companionways with lift doors to facilitate the loading and unloading of equipment, and other special features. There is a commodious bridge over the motor compartment, for steering in good weather, and another steering gear is rigged in the pilot house. Both outboard and inboard cooling circulations are provided—the latter from a 500-gallon fresh water tank forward, for use in shallow water where the outboard intake would be liable to suck up mud, etc.

This vessel is used to take the Department Commander and his officers around the different fortifications of New York Harbor. In the Artillery District Commander's service it is employed to take the officers and members of their staffs to the various posts in the command, and also to carry working parties of enlisted men from post to post for cleaning guns where there is no permanent garrison,

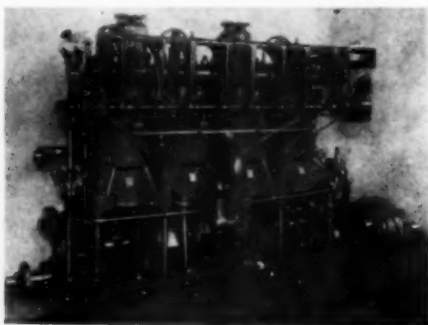


Thirty-two of these distribution-box launches are used by the Coast Artillery Corps.



The luxurious interior of Lieut. Ward Cheney's deck house looking aft and looking forward.

or towing out targets in practice duty, and for general despatch. During the recent Boston manoeuvres vessels of this type carried as



The 75 horse-power Craig engine.

many as 120 men, when attacking the forts at night.

The boat is equipped with a Craig 75-horse-power, four-cylinder, four-cycle engine, the same as the engine of the Ailsa Craig, that won the Bennett Cup Race from New York to Bermuda and back. During the 1,240 miles' run at the Boston manoeuvres the Cheney made 10¼ miles per hour average, with a consumption of 8 gallons of gasoline per hour. The official test of the engine, which was supervised by Lieut.-Col. I. W. Littel, Deputy Quartermaster General, showed 97 horsepower at 320 r.p.m. on the blocks.

The engine has many interesting features, a few of which may be mentioned. The cylinders are 9 inches in diameter by 10 inches stroke, and have ¾ inch valves in the heads, an arrangement which satisfies the require-

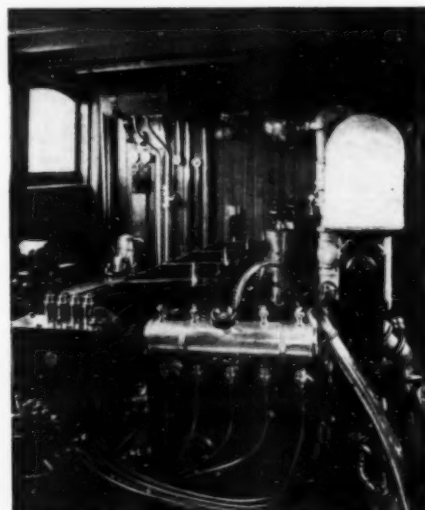
ments of a combustion chamber of minimum cooling surface. An auxiliary exhaust chamber (not shown in the view because it is on the starboard side) is provided, the passage into which is uncovered by the piston at the bottom of its stroke, with a mechanically operated valve which makes connection with the regular exhaust. The lubrication, and the sizes and types of bearings, are in accordance with the best marine practice.

On the before-mentioned manoeuvres the Cheney made good weather throughout. She showed 11 knots per hour for four hours over the Government course in Long Island Sound, measured by the Bliss Taffrail Log, and corrected for tide, etc.

An interesting type of boat has been designed for the War Department for service in connection with the harbor defence by submarine mines. Thirty-two of these vessels, which are known as distribution-box launches, were built by the Electric Launch Co., for the Coast Artillery Corps' use in the fortification of harbors and rivers along the Atlantic and Pacific seacoasts, Hawaii and the Philippine Islands. Two of them are in service at the present time in New York waters, there being two artillery districts there. The entire number of these launches was built in the summer of last year and delivered at the record date of one a week, the order being the largest ever placed by the Government for motor boats.

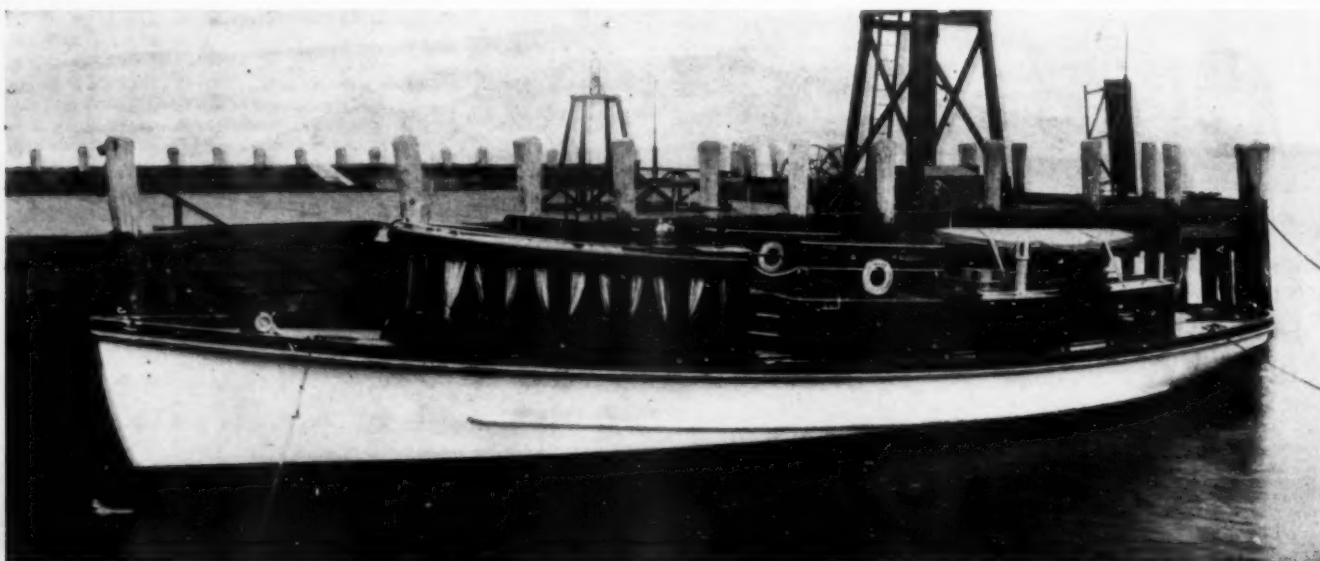
These boats were designed to facilitate the work of planting the electric cable distribution-boxes by which a group of submarine mines are interconnected so as to be exploded as desired, either singly or simultaneously from the same electric contact. The distribution-box consists of an iron case to which the

cables to the different mines are brought and in which are contained the insulated splices and cross connections for connecting the mines in series on the firing circuit. It is a heavy and unwieldy structure, made more so in the handling by the numerous cables that run from it to the mines and the multiple cable to the firing point, all of which have to be kept from all risk of kinking and snarling when the distribution-box is cast overboard ("planted") at the center of the connected group of mines.

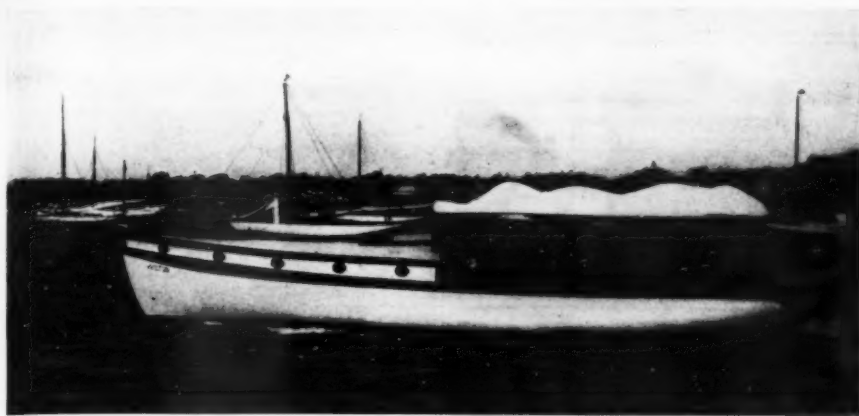


Lieut. Ward Cheney's engine-room.

The boats are 32 feet long, 9 feet 10 inches beam, and 3 feet draft. The hulls are sub-



Lieut. Ward Cheney, the 60-footer in use by the Commanding General, Department of the East.



The 45-footer, Wilton, in the Customs Service of the Treasury Department.

stantially built, with an oak frame and heavy cedar planking, copper-fastened throughout. Two cockpits are provided, separated by two water-tight steel bulkheads. The forward cockpit is arranged for carrying a company of twelve to fifteen men. Through the center deck, between the cockpits, is stepped a strong, well-guyed derrick mast, equipped with a winch that operates a hoist for a pair of shear-legs of galvanized steel I-beam. The end of the sheer is fitted with a sheave and, when lowered, projects over the stern of the boat. In the after cockpit is a working table, sheathed with galvanized sheet steel, for supporting the distribution-box while the men are working on it, and from which it may be hoisted and cast loose over the stern by the sheer, without danger of fouling the cables as it goes overboard.

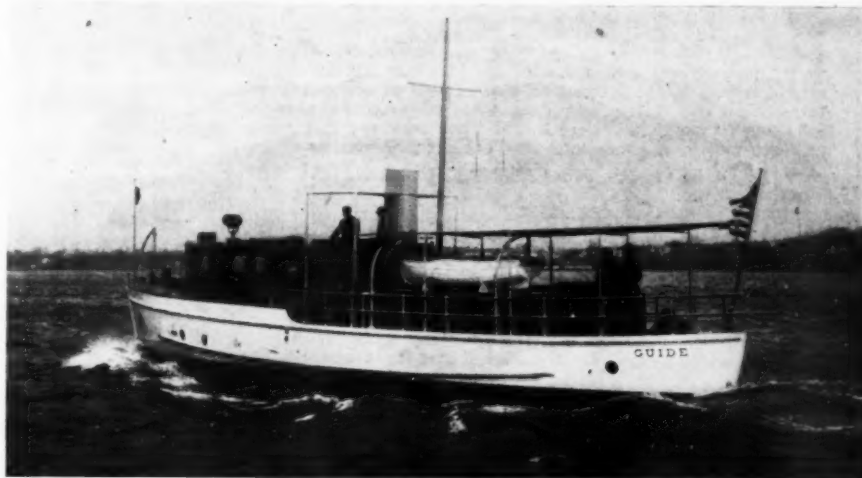
The power equipment consists of a 12-horsepower, two-cylinder Standard gasoline engine installed in the after cockpit, with control of engine placed alongside the steering wheel in the forward cockpit, thus enabling the boat to be steered and handled by one man. A 50-gallon copper gasoline tank is carried in a copper-lined compartment under the forward deck, which is removable.

In official trials these boats developed a speed of 8.5 miles an hour and proved to have large carrying capacity, unusual buoyancy and excellent sea-going qualities.

The Schuyler, located at Fort Schuyler, on the East River, at Westchester, is a launch of three tons gross burden, 25 feet long, 5 feet 8 inches beam and 1 foot 10 inches draft, built in 1902 in Brooklyn at a cost of \$850. She is used by the Superintendent of Fortification Works resident at Fort Schuyler, to make his trips between Forts Totten, Slocum and Schuyler; also for miscellaneous errands, supervising work at the forts, etc.

The Marie is used for transporting hydrographic survey parties, and on the south shore of Long Island for special work in the shal-

low rivers and arms of the sea, where heavier-draft vessels cannot go. She is 29 feet long, 8 feet beam and 4 feet draft, and was built in New York in 1896 at a cost of \$1,000. She



Guide, the 65-footer of the Bureau of Navigation, patrols the lower bay, harbor and North River.

is regularly stationed at Mill Rock, foot of East 92d Street, East River. She is also used for towing house-boat quarters for survey parties.

The Department of Commerce and Labor, Bureau of Navigation, is represented among the gasoline craft by a vessel employed in the supervision of anchorages of vessels in the Port of New York, the 32-ton gasoline launch Guide, 65 feet long, 9 feet 6 inches beam, and 5 feet 3 inches draft, built by the Electric Launch Company, at Bayonne, in 1908. This vessel is under the orders of Captain Hamlet, Supervisor, Barge Office, and it patrols the

Lower Bay, Harbor and North River to keep incoming vessels from anchoring out of prescribed bounds. Ordinarily the pilots of incoming vessels know the proper anchorage grounds, but many small craft need to be "shooed" out of the channels of navigation. The service of the anchorage boat does not include interference with the legitimate business of the tow-boat companies by giving vessels a boost, except in case of dragging, vessels in distress, etc.

Beginning at 9 A. M. she cruises all day till evening, following a regular course, unless she receives a telephone message at one of her touching points, advising her that there is congestion of channels, due, for example, to confusion of anchorages by barges or canal boats from inland waters. She supervises lines of tows made up at "stake boats" (under permits granted by the Anchorage Office) to go up the North River. During the Hudson-Fulton Celebration some of the stake boats were ordered "taken in" temporarily. The work includes the prevention of other violations of the revenue cutter law as well, such as long blowing of whistles, improper crowd-

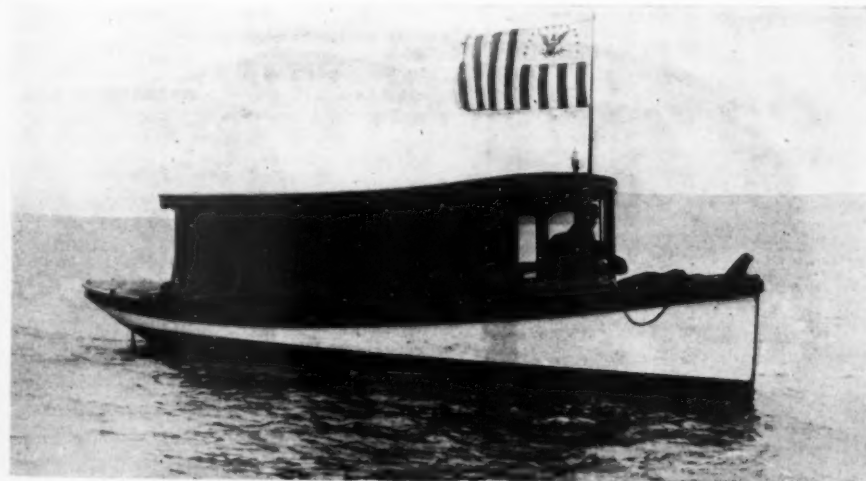
ing of passenger vessels, etc.

The Bureau of Immigration has the Samoset, a 12-ton (6 tons net) gasoline launch, 40 feet 6 inches in length, 9 feet beam and 4 feet 6 inches draft, built in 1898 at Communipaw. This boat was originally an alcohol vapor launch, but a new Standard engine, giving 25 h.p., has been installed in her, which enables her to make 14 miles an hour. The Samoset is used for emergency repairs, for patrolling the new cable run from Ellis Island to Manhattan, and the watermains to the Jersey shore, and for the Commissioner of Immigration and other officials on special errands.

In the Customs Service of the Treasury Department, two gasoline vessels are employed on special work: the 45-foot launch Wilton and the 40-foot launch U. S. Customs No. 1.

Wilton is a convenient, speedy boat, used at present at night work on a "roving commission" in the waters of New York Harbor, being chartered of a private owner (who serves as her engineer) for the purpose. She can make 11 miles an hour at 400 r.p.m., and is thus able to overhail any small craft engaged in smuggling. She starts out every night from her berth at the left of the new Municipal Ferryhouse, foot of Whitehall Street, Manhattan, and cruises all night under general or special orders, based on official information. Sometimes anonymous information leads to important seizures. The crew of two or more men under Captain Peterson is armed with police clubs and firearms. There are a number of small, speedy boats in the harbor, suspected of petty smuggling, and the Wilton's work is to keep watch on them and

(Continued on page 48.)



U. S. Customs No. 1 covers the entire Staten Island district.

The Prize Contest in Questions and Answers.

WE made two changes in the contest last month. One was to increase the prizes and the other to give more time to contestants for the preparation of answers. Both will result beneficially for our readers. The contest will be even better than it has been and that is saying a good deal.

The answers published this month are to the first set of questions given in the January issue. Answers to the second set must be in our hands by January 29th for use in the March issue. Answers to the questions given below will be printed in the April issue. Prizes for each set of questions will be awarded as soon as possible after the final date for receiving answers to them, and announcement of awards will be made by mail and published later on these pages.

READ the general conditions again: We will give prizes to those who send in the best answers to the questions printed herein each month, and in order that the contest may be helpful to the greatest possible extent, we will give prizes for the best and most practical questions submitted for the next following competition. There will be three questions in the contest each month, and therefore three prizes for the answers.

THE QUESTIONS FOR THE APRIL CONTEST ARE THESE:

What is the best interior arrangement for an open motor boat of from 20 to 30 feet over all? (Sketches are desirable.)
Suggested by Dorothy Wilbor, Cleveland, Ohio.

What instructions can be given that will be helpful to the motor boatmen in riding out a storm?
Suggested by R. W. Goddard, Worcester, Mass.

Seaworthiness, speed, cost, appearance and strength considered, which is the better construction for a cruiser—the

round bottom (bent frame) or the dead rise (knuckle—V—sharp bilge)?

Suggested by L. Kromholz, New York City.

Answers to these questions, addressed to the Editor of MOTOR BOATING, 2 Duane Street, New York, must be,

(a) In our hands on or before February 28th, (b) not over 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.)

Questions for the next contest should reach us on or before the 28th of February.

THE PRIZES ARE:

For each of the best answers to the questions above, any article advertised in MOTOR BOATING, of which the price does not exceed \$25, or a credit of \$25 on any article advertised in MOTOR BOATING, which sells for more than that amount.

(There are three prizes, one for each question, and a contestant need send in an answer to but one, if he does not care to answer all.)

For each of the questions selected for use in the next contest, any article advertised in MOTOR BOATING, of which the price does not exceed \$5, or a credit of \$5 on any article advertised in MOTOR BOATING, which sells for more than that amount.

For all non-prize-winning answers published we will pay space rates.

To all who send in answers, prize winners excepted, we will give a copy of Goldie's "From Novice to Pilot," a practical book by a practical man on navigation and the operation of a motor boat.

When you send in your answer state what you will take if you win the prize.

How to Make a Tool Locker.

Answers to First Question in January Issue.

The Prize Winning Answer.

DID you ever try to keep your tools from looking like a pile of rusty junk? If you have, you know how close to impossible it is. I tried it, gave it up, and carried most of my tools home, leaving only a wrench, screw-driver, hammer, and cold chisel on board. After getting stuck several times with little troubles and unable to doctor up because of lack of tools, I decided that the tools must be on board, and also must be protected from the moisture. This was a problem, and it took me some time to find a solution, but it came at last and certainly fills the bill.

I collected all the tools I had and selected those few with which all kinds of repair jobs could be done. I then sorted them out as to thickness, into three groups. The thickest group were: a large breast drill, bit cock, and smoothing plane. By unscrewing the crank handle on the drill, these tools could be accommodated in a drawer 3 inches thick. The next group consisted of a hack saw, 10 inch pipe wrench, 1 inch chisel, hatchet, large screw-driver, and 10 inch monkey wrench. These were all under 1 1/4 inch in thickness. The last group was made up of a combination rule, square bevel, and level, die stock, tap wrench, 1/2 inch chisel, round and flat files, hammer, small screw-driver, 6 inch wrench, whittling knife, small snips, the crank and handle for the breast drill, pliers and wire cutter, cape and flat cold chisels.

Then I purchased at a lumber yard 4 pieces of white pine: 16 x 11 x 3 inches, 17 x 11 x 1 1/4 inches, 18 x 11 x 1 inches, 5 feet x 11 x 1/4

inches; and 2 pieces of straight oak: 22 x 6 x 1 1/2 inches, and 7 feet x 11 x 1/4 inches. The tools were arranged on the pine blocks and traced around, then these outlines cut out on a jig saw. All large sections of the blocks not occupied by the tools were cut out to form pockets for small stuff. Bottoms were then fitted to the blocks of 1/4 inch pine. The thick oak piece was cut in two and grooved,

forming the sides of the chest and the ways for the drawers to slide on. Holes were bored in the thick portion, making pockets for bits to be kept in.

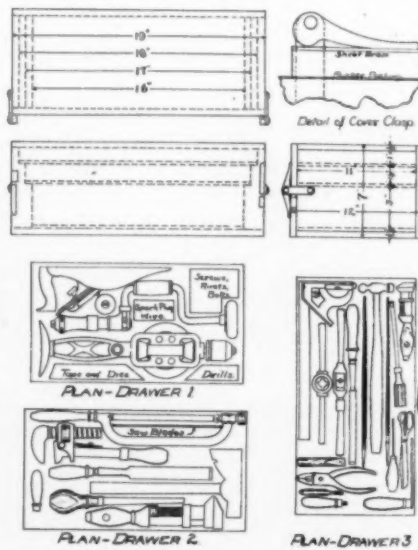
The top, bottom, back and lid were then fitted. A rubber gasket, cut from an old inner tube, was fitted to the lid. The cover clasp shown works very well and is quite simple. A pattern can be whittled out in five minutes and cast at any brass foundry. It should be made heavy so as to clamp the cover on tightly and not be easily bent out of shape. All joints should be well made and generously covered with white lead. A band of brass strip around the edges adds greatly to the appearance and strength. If carefully made this makes a very compact (.92 cu. ft.) and perfectly water-tight chest.

R. W. GODDARD, Worcester, Mass.

Securing Air-Tightness.

THE prime requisite for a tool box for a salt water boat is air-tightness. No matter how fine the box or how complete a set of tools, if they are a mass of rust the whole outfit is a failure. To a person unfamiliar with the ravages of salt water and salt air upon iron, it is almost incredible the amount of damage than can result in leaving iron and steel exposed. A file becomes useless in six or eight weeks, and bolts as well as all other small engine parts of iron become hopelessly rusted up in half a season, as any boatman knows to his sorrow.

The accompanying plans show the details of the only successful box which I have seen. If the chest is to be designed for a tight cabin cruiser, small attention need be given



Prize winning tool box design.

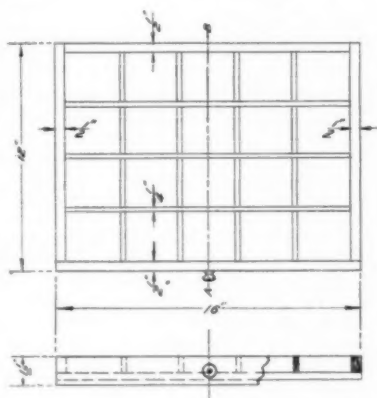
to the air-tight features, in fact no box is required, but a rack with slots to conform to the shape and depth of each tool can be made to hold the whole lot handily near the engine.

In an open boat it seems to me most convenient to have a general receptacle that will accommodate all tools quickly thrown in, for the continual placing arrangement and fitting tools in allotted places in a box takes time, and excepting small tools which may be placed in handy sockets, they may all be picked out instantly from the bottom, where they lie in oily waste. The two features of this box are its air-tightness and the oily waste at the bottom, which tends to keep a thin film of oil on the tools, helping to prevent rust. The joints and entire inside is painted with a fairly heavy paraffine solution which is easily made by dissolving one-quarter of a pound of paraffine in one pint of gasoline. Stain the outside with oak stain and varnish with four coats spar composition.

The clamps for drawing the cover tight can be found in different forms at hardware stores. The hinges must center as in drawing so as to allow the cover a clean swing and drop on to the rubber cable.

I used the rubber tires of an old baby carriage, turning the worn halves down into the wood and cementing them in place with shellac. Brass corner pieces improve the appearance and are not expensive.

GEO. D. BARTLETT, JR., Brooklyn, N. Y.



G. G. Terriberry's set of drawers.

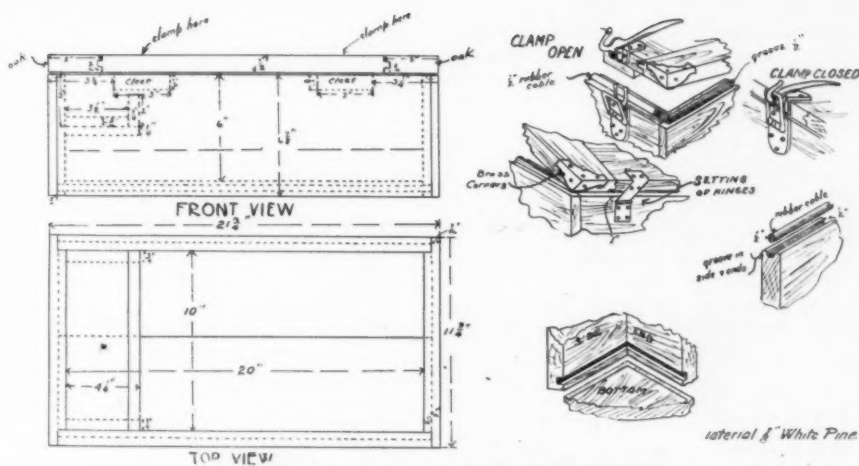
A Set of Drawers.

A LOCKER for engine tools should be able to hold all the tools used about the motor, occupying at the same time as little space as possible. The locker shown is designed to be built under a seat. For this purpose the most satisfactory arrangement is a set of drawers. This enables all the space between the floor and the seat to be utilized, the tools may be kept in good order, and they may be taken out as required without lifting off the top of the seat and the passengers with it.

Fig. 1 shows such a set of drawers of the same width and depth, whose height varies according to the class of tool they are to hold. The lower drawers are designed for wrenches, hammers, screw-drivers, files and pliers. The two upper drawers may be subdivided, as in Fig. 2, for nails, screws, bolts and the innumerable odds and ends which always collect in the neighborhood of a motor. The construction of all the drawers is essentially the same, the only difference being in the height and division of the interior. The five lower drawers are not subdivided but may have wire nails driven in the bottoms to hold the tools in place in a seaway. The fronts of the drawers should be made of the same material as the interior woodwork of the boat, and finished to match.

The amateur will find this not difficult to construct and at the same time he will find it a serviceable and highly satisfactory arrangement.

G. G. TERRIBERRY, Itasca, N. Y.



Assembly and details of G. D. Bartlett's design.

For a Small Open Boat.

THIS design is intended for the small open motor boat, for a boat that is hardly ever in a boat house, but is covered only with canvas or some such covering. After every rain storm the tool lockers of the ordinary boats are found to have been soaked, the tools beginning to rust and everything damp.

made of $\frac{1}{2}$ inch stuff. The lid and door can be made from one piece, or built up of narrow strips. Heavy cleats securely screwed to the back of both lid and door, as indicated. The hinges should be the "Soss Invisible Hinge," than which there is nothing better for the purpose, as they do not project in the way, and are very easy of application.

The lid can be secured from the inside and the door locked from the outside. This locker would be dry in the worst weather, the tools kept from rusting, cleaning materials dry, and conduce to the comfort of the owner.

W. J. SCALES, Glens Falls, N. Y.

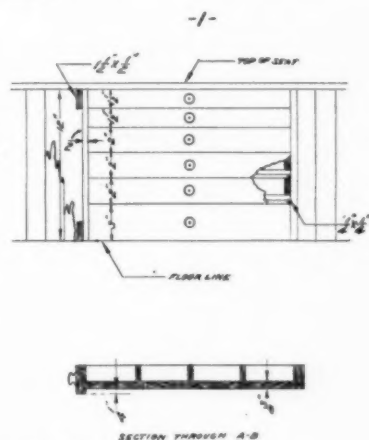
When Space is Limited.

WHEN I built this locker, space was at a premium in my boat. I did not want it to be in the way nor did I want it where I could not get at it quickly in an emergency, and inasmuch as this locker affords much more convenience and is more get-at-able than any other I have ever seen, I hope someone will use the idea. It is particularly valuable because one can see at a glance all the tools in it, something that is not always possible with a drawer or "cubby." The following is an exact list of material, one inch pine planking being used, dressed to the following dimensions:

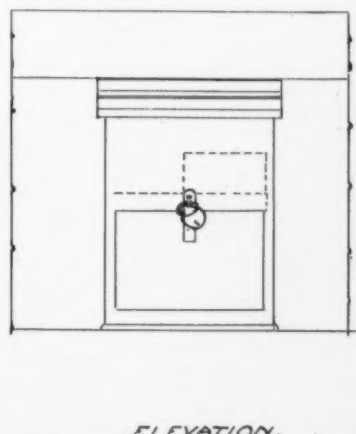
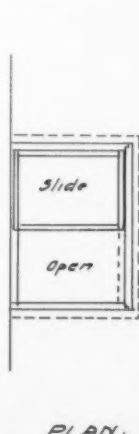
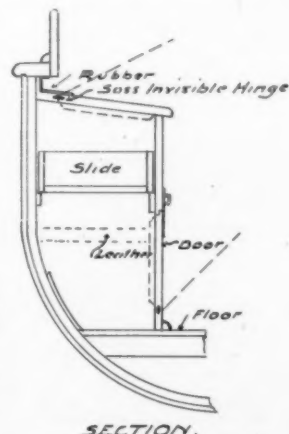
- 2 Pieces 19" x 9" x 1" for sides of box.
- 2 " 7" x 9" x 1" for ends of box.
- 1 " 17" x 7" x 1" for bottom of box.
- 2 " 21" x 2" x 1" for reinforcing sides of box.
- 2 " 7" x 2" x 1" for reinforcing ends of box.
- 2 " 9" x 9" x 1" for covers of locker.

Four galvanized hinges, and $\frac{3}{8}$ galvanized screws for same. Some 3 in. galvanized screws and some 2 in. galvanized wire nails.

Nail the sides and ends together securely and then nail in the bottom. If these pieces have been well made, the result will be a nice square-cornered box. Now nail the reinforcing pieces on the outside of the box so they will be flush with the top sides. Take the seat under which you propose to have this



The pitch given the top of this locker is for the obvious reason of shedding the water. The strip of rubber secured up under the coaming only is to prevent the water running through the joint. The sliding tool tray is for the small and most frequently used tools. The leather strips, indicated on inside of the locker, for wrenches, hammer, etc. The door on front of locker gives freedom of access to the whole locker, and facilitates cleaning. The locker can be easily built, using almost any wood desired, or at hand, and can be made of $\frac{3}{8}$ inch stock. The sliding tray should be



The design of W. J. Scales.

must be nice and square and the seat will have to be at least 12 inches wide to accommodate this locker. If it is not that wide make it so by adding another strip which can be cleated on.

It will now be seen that this box will project one-half inch over this hole you have cut, thus forming a little shelf for the covers to rest on. Fasten the hinges on, first chiseling out a place so they will set flush with

the seat and then fasten one piece of leather to the underside of one door forming a pull with which to open the locker. Also on the underside of each door, take some strips of leather to hold the smaller tools such as pliers, screw-driver, etc. This is a splendid place for extra spark plugs and bits of copper wire and other small stuff. The larger tools can easily be taken in and out of this locker, while the doors opening at the top

permit a lot of light to enter into the locker itself, thus making it very easy to locate any desired tool. If one has not all the tools required to do a strictly first class job, the mill-men will get out the material and mill it to exact size for 75c. With the fittings costing about 25c. more it will be seen that the total cost is only a dollar, and it will be money well spent. Try it.

C. C. BURNHAM, Cambridge, Mass.

Emergency Rigs for Motor Boats.

Answers to Second Question in January Issue.

The Prize Winning Answer.

WHILE it is fashionable at present for motor craft of all sizes above 25 feet to carry a light signal mast for appearance sake and for displaying the owner's private signal, there are few of these spars upon which one would venture to carry sail even in extremely moderate weather. In ordinary practice they step into a casting or block on the deck and are but lightly stayed, being designed wholly for ornamental purposes.

For an emergency rig the mast must be stout and however unwelcome the butt of the stick may prove in the living quarters, it must step solidly upon the keel. Two good wire shrouds on each side fitted with turn-buckles and a wire forestay are all the standing rigging required. The shrouds will incidentally provide excellent positions for the side lights, which for outside work should be elevated more than is customary in small cruisers.

Since Ailsa Craig's first Bermuda trip demonstrated the lack of driving power possessed by jib headed sails at sea, it would be unwise to select the leg of mutton sail for our emergency outfit. The next in order of simplicity and first in the order of all-around fitness is the standing lug. This requires but one spar (the yard) and but a single halyard. The tack is made fast to the mast near the deck and the sheet is the only other piece of rigging required. The yard should be jointed at the slings, using a long ferrule of heavy gauge brass tubing or, if preferred, three clamp collars of galvanized iron set up with bolts and nuts. The joint in this case should be halved so as to make a very long splice. At the slings a rawhide covered ring should loosely encircle the mast, being secured to the ferrule or the middle collar by a strong hinge bolt. The halyard should hook in at this point.

Both sail and spar should be strong and serviceable, for who knows but what the engine may give out when you are ten miles off shore in a fifty-mile gale? In cutting the lug do not give it too much peak as a fairly square headed sail carries its area well aloft, an essential in a seaway and is a great driver with the wind quartering or over the taffrail. With this rig everything can be stowed snugly below when not in use, only the rawhide covered ring remaining round the mast at the deck, with the halyard block hooked into it, the fall of the halyard belaying upon a convenient cleat. The two halves of the yard laid side by side with the sail furled upon them are quickly secured into a compact, if a trifle lengthy, bundle by a sufficient number of turns of the main sheet. A waterproof cover would help in keeping the sail clean and free from dampness since it is so seldom used. The strongest points in favor of this rig are these:

1. Simplicity, since it requires but one spar, one halyard and one sheet.
2. Easy stowage, since the whole rig can be made into a compact bundle which in most cruising craft can be carried on brackets beneath the cockpit floor or in similar waste space.
3. Good driving power, as the standard

lug possesses the good points of the gaff sail combined with the acknowledged advantages of the square sail when running before the wind.

4. Quickness in setting the sail. The yard may be put together, the halyard attached and the sail set and sheeted home in ten minutes.

5. A tall mast is not required with this rig. Should anyone doubt the strength of the jointed yard here described, I can assure him that, properly proportioned, it would undoubtedly break anywhere in its length before the splice would yield.

ALLAN O. GOULD, Portland, Me.

Should be Used in Emergencies Only.

THE motor boatman can never, of course, expect to increase the speed of his boat to any extent by carrying an auxiliary sail as most motor boat hulls are not built with the idea of using sail as a motive power and if one has that view in mind it will pay him to purchase an auxiliary cruiser. Still I am a firm believer that no one should go off shore without some means of helping himself in case of a serious breakdown to the engine. A case of this sort happened last summer and no doubt is still remembered how a fishing party were kept out all night owing to the inability of the crew to help themselves after the batteries had become short circuited. Had this boat been equipped with some sort of auxiliary sail power she no doubt would have been able to get inside of Sandy Hook and receive assistance before she did.

In installing this equipment we must first consider the fact that it is only to be used in case of emergency. That necessitates its being easily set and also easily stowed away when not in use.

First we have the spar to contend with. Now a boat seaworthy enough to go to sea must be at least 30 feet over all, and a spar to be of any use to her would be too long to stow away, so it will be necessary to install it permanently. It should be at least 20 feet

in height above the deck and will not only improve the boat's appearance but will also be found useful for signaling, carrying the head-light, riding light, etc., but in fact an absolute necessity for all boats contemplating a cruise.

This spar can be hinged so it can be lowered to pass under bridges and avoid all delay in waiting for the draw to open.

Now for the sail, and while there are all kinds and styles in use, there is none, to my mind, so easily set or stowed away as a sprit sail such as is used on small skiffs. This sail requires no gaff or boom and the sprit can be jointed to take up less space when not in use by having a good ferrule in the middle of it which will not weaken it to any extent. A good place to keep it when not in use is to lash or fasten it to the spar where it will always be handy and not take up any unnecessary room.

This rig, I believe, will soon gain favor with all who desire a quick and serviceable auxiliary power.

HARRY HUNTER, Newark, N. J.

The Two Chief Requirements.

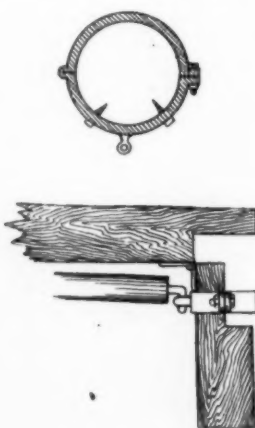
THE selection of an emergency sailing rig is governed by two factors, compactness, to afford easy stowage and also to assure it always being on board; ease of erection, to live up to its name, an emergency rig.

For the average cruising boat, a sprit sail fills both these requirements, since there is no cumbersome boom with the necessary topping lift and forestay. This decided advantage of a sprit sail is further augmented by the fact that collectively the spar, sprit and sail form a very efficient awning for the cabin top, utilizing the sprit as a ridge pole. The outfit in mind consists of a 3-inch tapering spruce spar about 7 feet long fitted with four stays. All metallic fittings, including the stepping device, to be galvanized. The forward stays would have sister hooks to engage suitable deck fittings while the two after ones would have a thimble spliced in about 3 feet from the deck. By passing the hauling end through a ring bolt in the deck and then through the thimble a purchase is established equivalent to 2 single blocks or a power of 1 to 3.

The stepping arrangement consists of a piece of 3 inch iron pipe about 2 feet long, so forged that the lower half fits over the mooring bit. This sail would have an area of about 60 square feet and be fitted with a rather stout bolt rope along the foot and leech. The luff would have cotton ties spaced 18 inches in lieu of mast hoops, while the tack and throat would be reinforced and fitted with 1/2 inch cotton ties to insure a proper fastening to the spar. No provision would be made for reefing. The peak would have a grommet sewed in for engaging the sprit and the becket would be of 1/2 inch manila.

This rig is useful, as well as ornamental and could easily be broken out of stowage and set in about five minutes by two persons. There are about 6 square knots to tie, all within reach and two stays to fasten. All that remains is to spread the sheet with the sprit and then go home—not in another fellow's wake.

C. PETERSON, Brooklyn, N. Y.



The above sketches submitted by T. H. Curtiss illustrate a form of joint and strap by the use of which it is possible to bring down the mast without unstepping, when passing beneath a bridge.

Steering Equipment for Open Boats.

Answers to Third Question in January Issue.

The Prize Winning Answer.

IN answer to the question, "What is the best steering equipment and arrangement for an open boat?" it is quite a difficult matter to say which is the best steering equipment for any boat, as there are several ways of steering and the best way is the one which suits the owner.

It appears to me that the most satisfactory arrangement is to have the steering rope pass completely around the cockpit and over the drums of two steering wheels, one situated in the bow and the other just forward of the engine.

With this arrangement the operator can sit with one hand on the steering wheel and with the other he can reach reverse gear, spark or throttle, thus having the boat entirely under his control. If any of the owner's invited guests or companions wish to steer the boat (as they generally do), they may use the forward wheel, where there is a good view ahead. The beauty of this arrangement is, that while your friend at the forward wheel flatters himself that he is running things, you can at any moment take command by using the wheel at your side.

Another point, when in a heavy sea it is very disagreeable to stand up in the eyes of the boat, while if you have an after wheel, it does away with that discomfort.

Some people prefer simply to have a rope running through eyes, which they can operate at any point. This has the disadvantage of being tiresome to hold for any length of time and does not look very shipshape. Others have a lever attached at some convenient point to this rope, usually near the motor. The bottom of this lever is hinged by means of a block and pin to the seat or floor and the rope fastened about six inches from the upper end. The boat is controlled by moving the lever fore and aft. This arrangement has the advantage of being quicker than a wheel, but it takes up space and is somewhat unsightly.

Some still stick to the old sailboat tiller, which is certainly simple, but has the objection of being located aft of the engine and taking up the whole after deck to swing in.

The matter of what to use for steering ropes generally is a great problem to the amateur, who tries everything from chain to clothesline. I find that plain manila rope gives as good satisfaction as anything, when properly prepared. I have used the following method to prepare it, with good success: Having purchased the correct amount of rope, viz., about five feet more than your present one measures, soak it over night in linseed oil and in the morning stretch it up between two trees or other objects, as tightly as you can and hang a heavy weight in the center. Allow it to stay in that condition for several days, tightening up on it from time to time, until all the stretch is out of it.

You will find that this rope will last as long and give as good satisfaction as any steering rope you can buy and when it is gone it costs but a few cents to replace it.

In putting the rope on steering wheels, place it so that the top of the wheel will turn toward the direction in which you want the boat to go. There is every reason in the world for this and it comes natural to everyone. Do not think because you see a tug boat or large steamer rigged opposite, that it is necessary to have every sixteen-foot skiff the same way. Steamboats were originally rigged in that manner in order to make the old commands of "Port your helm," when you wished the boat to turn to starboard, still hold good. This avoided confusion with the old salts who were brought up with a tiller.

Above all else to be considered in providing a steering apparatus is the matter of strength and reliability, for it is the last thing in the equipment of a boat which you would like to have fail at a critical moment.

GUILFORD D. YOUNG, West Haven, Ct.

Tiller, Simplest and Strongest.

AS the steering equipment of any boat is as important as the motive power, too much care and forethought cannot be given same. There are three things to be considered in installing same—simplicity, durability and easy accessibility in case of emergency.

For simplicity there is no doubt the old-fashioned tiller is the best of them all. Fashioned from good clear white oak it will outlive the hull and should it become damaged in any way—a rare occasion—an oar or any other piece of wood can soon be fitted to take its place.

In cases where the engine bed is set well forward this idea may seem unhandy as it will be necessary for the operator to leave the helm while adjusting the engine; but to offset this theory how many of us ever go anywhere without having someone with us whom we can trust for a moment or so.

Another point in favor of the tiller is the rapidity in which the rudder may be put hard over—a push or a shove and it is there—perhaps only a fraction of a second sooner than with a wheel, but that will often avoid a serious accident.

To use a wheel at the forward end of the cockpit, even though it may give the operator a clearer view of the surroundings, it is necessary to use so many fair leaders and blocks there is bound to be more or less chafing, and if one does not examine the tiller ropes at stated intervals he will be left in a lurch when most needed. This is especially true in a case where one is driving through heavy seas and it becomes necessary to ease her off a little so she won't pound so hard. Then the tiller ropes are subjected to an unusual strain and if there are any weak spots they will surely part, leaving the boat helpless to broach to and probably swamp.

Thus it can be seen that the tiller handle is still the most practicable of all steering gears for open boats. Gears may come and gears may go, but like the "white-ash breeze" the old-fashioned tiller handle never fails.

EWING A. CRAWFORD, Newark, N. J.

An Improvised Rig.

THERE are two great primary requisites in the steering gear for an open boat, and some other matters of importance but not quite so vital.

The first and most important thing to be considered is the strength of the steering apparatus, including the rudder blade, the rudder stock, the tiller, the ropes or whatever substitute is used, and the wheel, or lever by which the whole is operated.

This, of course, is the vital and most important thing, and the second is to have some positive system of controlling the rudder.

I have seen launches with a rudder made by sawing a slot in a piece of brass piping—and none too heavy a gauge at that—and in the slot inserting a piece of sheet brass about 1/4 of an inch thick. This, it is needless to say, is utterly unsafe and entirely untrustworthy and its use is a constant menace to life.

The strain on the rudder, especially when running before a sea, is exceedingly severe.

To begin with, then, the best steering gear and equipment would consist, primarily, of a heavy cast brass rudder blade, with the bottom lug cast integrally with the blade. The stock should be also cast bronze, of ample diameter, with two lugs cast integrally with it,

separated so the blade fits snugly between them. This should be riveted through the blade, care being taken to have the stock in alignment with the bottom lug. The top of the stock should be squared, and a cast bronze tiller or quadrant carefully fitted to the squared part, and held in place by a washer and nut on threads cut above the square.

It is a wise plan to have the stock pass up through a brass sleeve, flanged over on deck and where it passes through under the stern. This is easy to keep tight and makes a neat job.

Whatever apparatus is used to operate this outfit, should preferably be located abreast the motor and it is essential that it be positive in its action.

If lines and a common wheel are used, the lines must be abundantly strong, and should be run so that in case of possible break they can be easily replaced. The line should also be made fast to the drum of the wheel by staples. It is unsafe to trust to the friction of the line on the drum.

If the more modern motor gears are used, it is highly important that the blocks, of whatever type, are strong and well fastened to the deck. A deck block with only two 3/4-inch brass screws is wholly inadequate to stand the racket long, yet this is a very common way of rigging the gear.

For those who like to make up and rig their own gear I will describe one devised and put in use by myself, which has given perfect satisfaction for a hard season without a single break or slip.

I made up a pattern by taking a bicycle crank and axle, putting a small handle in place of the pedal and having a bronze casting made of that. I also took a rear sprocket having nine teeth and put a wooden plug through it, the plug being about an inch long, to form a hub. After the castings were made, I had the axle part of the first casting turned smooth, leaving a shoulder near the crank; then I had the hub of the sprocket bored to fit the axle, as turned, and a taper pinhole bored through the hub and the axle. To support the outboard end I had a bracket cast, and bored to take the end of the axle.

This was rigged by boring through the coaming, two washers being riveted, one on each side, to prevent wear, passing the axle through from inside; putting on the sprocket and pinning it fast with the taper pin, and then the bracket which was made fast on deck. Around the sprocket I passed a bicycle chain, having made a ring for each end. The tiller lines are run to this, using a single block on deck on one side and a double block on the side where the apparatus is, and having a turnbuckle next the chain on one end. The lines are made fast in the rings and kept tight by the turnbuckle.

This rig is inexpensive, absolutely positive in action, and abundantly strong, and it has the merit that it will hold the rudder in any position without a becket.

The great advantage of a side steering apparatus is that the motor can be reached by the person steering without change of position.

"HUNTINGTON."

The Sprit Rig Best.

THE best rig for emergencies for a launch up to thirty feet in length is the sprit sail with a small jib, for the following reasons:

A sprit sail requires less spar gear for a given spread of canvas than any other rig, therefore, for an open launch or small cruiser where poles or spars would be very much in the way this rig is ideal. The sails can be made of drilling, which is light and strong,

(Continued on page 48.)

Among the Clubs



The anchorage of the Boston Yacht Club.

Pistakee-Fox Lake Association, Milwaukee, Wis. This is a new organization comprising yacht and motor boat clubs on Fox Lake and Pistakee Lake with the object of harmonizing the interests of all such clubs, supervising racing schedules, entertainment programs, and the like. The following clubs are members of the association: The Fox Lake Country Club, Columbia Yacht Club of Fox Lake, Pistakee Yacht Club, and Pistakee Country Club. The following officers have been elected to serve for one year: Admiral, Joseph F. Haas; rear-admirals, Lewis A. Passow, Hart Hanson, and Andrew McAnsh; secretary, Frank L. Pasdelope.

St. Augustine Power Boat Club, Jacksonville, Fla. At a recent meeting it was decided to hold numerous regattas during the winter season, the first of which took place on New Year's Day. Valuable cups will be put up by the club for future contests and a great deal of interest is manifested in the races. It has been arranged to have the club house open at least one evening each week in order that the members may congregate and discuss topics of interest to the club. Commodore J. E. Ingraham was appointed vice-president of the National Power Boat Association and has accepted the office.

New York Motor Boat Club, 147th Street, New York City. At the last regular meeting the following officers were elected for 1910: Commodore, Frank D. Gheen; vice-commodore, A. T. S. Clark; rear-commodore, E. E. Barney; treasurer, C. F. Chapman; secretary, C. H. Douglass; member of the Board of Governors, Arthur Bradley, Jr. The club is growing rapidly, nearly one hundred new members having been enrolled during the past year and recently a lease of an additional hundred feet of water front on the Hudson adjoining the present grounds of the club was secured. In racing the club has handled a great number of important events during the past season. In July, the New York to Albany and return handicap race was successfully held and proved very popular. Under its auspices also the annual racing events of the National Carnival in September and the power boat events of the recent Hudson-Fulton Celebration were held. Races, club runs, regattas, and carnivals are being planned by the club for every month of the coming season.

The Erie Yacht Club, Erie, Pa.—Commodore Bliss, in a recent letter to one of the men prominent in the movement to organize a company of Naval Militia for the Great Lakes, states the Erie Yacht Club will support the movement, and there seems every

reason for the success of the undertaking.

Island City Boating Association, Rock Island, Ill. This club is planning for next season an endurance race of about 58 miles down the river. Such a race would permit other boats than mere racing machines to be entered, since some of the latter would not be able to stand up under the strain of a long run at high speed. It is thought that such a race will create a desire for staunch practical motor boats, and the club members are very enthusiastic over the plan. The course will probably be from Rock Island to Muscatine and return.

Thousand Islands Yacht Club, Alexandria Bay, New York. Seventeen of the "One Design Class" of boats to be used in races to be held by this club next summer have been already subscribed for by the following members: George C. Boldt, F. G. Bourne (2 boats), Charles M. Englis, Ira Kip, Jr., George F. Benson, W. F. Harris, Thomas A. Gillespie, Ernest B. Rubsamen, Egbert Le Fevre, David H. Lyon, Frederick A. Reed, Frederick R. Burnham, Jr., James L. Pass, A. G. Miles, Norris Oliphant, and Edward S. Lawrence. There are twenty boats in this class and it is probable that the remaining three will be subscribed for within a short time.

Columbia Yacht Club, Chicago, Ill.—Following are the officers elected for the year 1910: Commodore, W. Y. Perry; vice-commodore, H. D. Moreland; rear-commodore, J. G. Giaver; secretary, Irving M. Orr; treasurer, Charles Coleman; directors, Harry Diehl, and Ray Wait.

Buffalo Launch Club, Buffalo, N. Y.—Great interest is being taken in this section in the formation of an Inter-Lake Motor Boat Association embracing all the power boat clubs along the Great Lakes. The Inter-Lake Yachting Association, whose interests are more or less devoted to sailing and sailboats, has been in existence some time, but the need is felt for a separate organization for power boats. The Buffalo Launch Club has taken the initiative in this matter and a final meeting for organization is planned to take place in Buffalo during the Power Boat and Sportsmen's Show which will be held from March 21st to 30th.

Carnarsie Yacht Club, Carnarsie, Brooklyn, N. Y. The following officers have been elected to take charge of the club affairs during the present year: Commodore, Dr. Jos. H. Hodgson; vice-commodore, A. H. Brook; treasurer, Jno. Sparr; recording secretary, J. Halstead Patterson; financial secretary, Geo. E. Winters; treasurer, Herman K. Green. Reports from the various committees show the

club to be in an excellent condition and with the addition of a number of boats, especially of the cruising type, many important events are being planned for the coming season. The chairman of the House Committee reported that measures were being taken which would ultimately result in the establishment of a number of permanent lighted beacons in Jamaica Bay, beginning at Rockaway Inlet and extending up the main channel.

Biscayne Bay Yacht Club, Miami, Florida. The club expects to take possession of their new club house in a short time. Plans were made for securing new quarters last year which resulted in generous subscriptions so that the building and piers were started some time ago. Since then a large force of men has been at work and at present all of the piers are set and the work is confined to the interior decorating of the building.

Gravesend Bay Yacht Club, Brooklyn, N. Y. This club has recently been incorporated with the Secretary of State and the following are the directors for the year 1910: Charles H. Phillips, Oscar Miller, Charles A. Stewart, George J. Clark, Lawren Moody, Louis Thyson, and Richard Cook, all of Brooklyn.

Newark Motor & Yacht Club, Newark, N. J. At the annual meeting held recently the following officers were elected for the ensuing year: Commodore, De Witt C. Pell; vice-commodore, E. R. Albrecht; rear-commodore, Floyd Riley; financial secretary, Theodore F. Flanagan; recording secretary, A. K. Sparks; treasurer, Joseph P. Krowl; measurer, D. N. Osborn; steward, William A. D. Sitzler; sergeant-at-arms, George Byrnes. A smoker will be held on Monday evening, February 14th.

Ridgefield Park Boat Club, Ridgefield Park, N. J. At a recent meeting of this club it was decided to construct a new house on the corner of Cedar Street and Hackensack Road. The building will consist of a hall with stage and all necessary equipment, two bowling alleys, shower baths, a ladies' room with kitchen adjoining, and a modern, fully equipped gymnasium. The location of the new club house is considered to be one of the finest corners in the town.

Yachtsmen's Club, Philadelphia, Pa.—At the annual election of officers, the following were chosen for the ensuing year: Commodore, J. G. N. Whittaker; vice-commodore, John A. Lucey; rear-commodore, William Kern; secretary, Maurice Belknap; financial secretary, Herman Mueller; treasurer, Ray Van der Herchen. The retiring commodore, Dr. Street, was presented with a gold watch by his fellow members.

Hints On Motor Boat Navigation.

Part IX.—Water, Wind and Weather Indications.

By George S. Goldie.

SURFACE indications are useful and should be watched for carefully when in unfamiliar water. When passing from deep water to that having sand shoals below, a variety of shades of green will be seen. The closer the sand is to the surface the lighter the green will be. Should rocks jut up through the sand, the water above them will appear to have a reddish brown tinge, in some cases very nearly a black. These shades may be varied by occasional rocks which do not collect weed or slime but remain a clear gray, and they are harder to detect from a distance.

During a blow, rocks, fish or any object under the surface, if not too deep, may be reflected in the face of the waves, and at times seen distinctly. When approaching land from deep water the shadings of the different depths may be made out with very little practice, and a shoal spot rising from deep water will attract the eye at once whether it be sand or covered with weed. The remarkable part of this is that even while running in fog out in the ocean a shoal may be seen quite distinctly. Again, a shoal will be marked during light weather, if clear of weed, by a jumbled rippling similar to that made by a school of fish close to the surface. This rippling may be in a long, narrow line or a broad surface varying according to the size and shape of the obstruction below. If the surface of the shoal is weed covered and the weeds reach near to the top of the water, instead of a jumble one will see a slick almost as though produced by oil.

The word "oil" brings to my mind an experiment which I tried in "The Race" this fall. While a hard roaring rip was running I selected a place where the waves had a semblance of regularity and put the boat into it. A thin stream of cylinder oil was kept running over the side, but the violence and dash of the waves seemed to assimilate it as fast as it was poured in. A large quantity for the size of the launch—21 feet O. A.—about a quart and a half was now thrown at once and it had an effect almost immediately, quickly controlling the breaking of the waves and reducing their height. We then passed out of the rip and watched the course of the oil as it sped away on a six-knot current, spreading as it went until it produced a placid spot of about one hundred feet in diameter in the midst of a tumult, into which the owner, though well known to possess both skill and daring, urged me not to let the boat drift. It was a fine illustration of the quelling power of oil.

The smoothness produced by weed differs from that of oil in that it has not the metallic skim, and varies in appearance with the depth of the weed below the surface. When at a depth of only a few inches, even though coming up through water enough to float a coaster, it will transform rugged waves into gentle undulations. The knowledge of this fact is of great benefit to those who use the numerous harbors which have extensive grass grown flats bordering their channels. Enter them where the tide is low or nearly so, and the channels will generally be clearly marked either by the grass or the slick produced by it.

It is well to know the difference between a tide rip and broken water produced by a shoal. The distinct difference lies in this: that the tide rip wave has no prolonged forward rush, and advances very little, if at all, then sinks only to have its place taken by a wave which has risen from just behind where the other went down. The fact that the water is not moving with the wave, only the wave motion which is in reality the power of the wind stored in or imparted to the water and which travels in a series of circles, each cir-

cle being completed in advance of the last; thus the power of the sinking or subsiding wave is not lost but is imparted in a downward and backward circle to the one which rises behind it.

An easy experiment to show how little water movement there is in a wave is to pour some ink over the side on a rough day and watch the waves run past it. It will be seen at once that there is no forward movement to the water and if there is a strong tide against the wind the ink may be seen running up and down hill over the waves, going steadily on its way, regardless of the action of either wind or wave. I have watched a launch without power and a towboat with its engine stopped, going rapidly to windward against a thirty-mile breeze and a strong sea. This tells one to keep his motor dry, and not to tinker with it while in bad water for it is unsafe to lose steerage way at such times.

There are indeed times when the waves stand in almost the same spot, a heaped-up mound of water, simply lifting and falling, being generally wall-sided and bad things to meet. A prominent writer on yachting subjects stated that tide rips were "but three waves deep." His experience with them must have been limited. During a blow avoid them by all means in your power, for their outer edges frequently give no indication of the inferno which is to be met within. If by chance you have entered a rip and find the huddle too much for your boat, do not try to turn, but bend your efforts to edging out sidewise. They have caused the destruction of many a powerful vessel.

The wave on a shoal is nearly of the opposite type. As a wave approaches shallow water the water in it starts forward and its large volume is rushed in onto the shoal, the bottom of the bulk being retarded so much by friction on the shoal that the top finally topples over, with great power.

When sailing along a shore on which the waves break, particularly a gently sloping shore, it is well to keep outside of the line where the waves begin to swell and grow higher. That occurrence marks the point where the water in the wave begins its forward motion. If traveling within that point keep an eye out to seaward, for an occasional wave larger than its fellows may begin to swell some distance further out and be in its rush when it reaches the boat, in which case the boat, if not quickly headed to meet it, may be sent shoreward like a toy and be entirely out of control.

Another thing with which acquaintance may add to personal comfort, is the backwash that comes from some shores pounded by heavy waves. The waves may rebound from them and send strong billows to a distance of half a mile or more into the advancing seas, breaking all regularity in the water's motion and rendering the boat likely to be boarded on both sides at once. One should keep well off shore if easier going is desired. This condition may be found during heavy weather when there is a rough uneven bottom though it be many fathoms below. This shows the desirability of having some knowledge of the bottom and what places to avoid at such times. Simply to know that there is more water than the boat needs to float in is not enough to make good seamanship.

The size of a wave is not a measure of its dangerousness, but rather its shape as compared to the size and shape of the boat.

Far out on the Atlantic in winter storms I have ridden comfortably in a dory or a Gloucesterman in weather which made passing ocean liners reel and gave to their passengers the opportunity to tell of the tempest tossed

schooners and the little boats with men in them, which would appear and disappear among the great sweeping seas. And I have been obliged to handle my boat carefully in waves four or five feet in height. While the sea is regular and it is in the great majority of cases, its size should give no occasion for worry if the proper man is at the wheel.

There are some men—I have been with them and tested them—who will tell one when out fishing in water with which they are not familiar, "There are rocks over there, let's try that spot." The rocks may be eight or ten feet down but they will be there. Ask one of these men how he knows and the answer is apt to be, "Why, I could see they were there," and that is all one can learn from him. They are born in the business and it is second nature with them. The real answer is that their eyes unconsciously detect a slight difference in the color and the action of the water above the rocks compared with that of the surrounding water.

It is safer to navigate a strange coast from seaward in rough weather than it is in smooth; the saying being, "Where it don't break it is deep."

To the novice it is often alarming to see ahead a swirling mass of water filled with eddies and great bursts coming up from below which spread in large circles on the surface. Shoals and unknown dangers come to his mind, but such conditions will never be found except in deep water. Water traveling with the same speed over shoal places will seeth and foam and possibly show risings where passing over an uneven bottom.

Before leaving the deep water for a trip in confined waters it may be of benefit to some and show the advantage of letting a large steamer have the "right of way" though she has apparently no right to it, to tell of the effect narrow channels, which lead through very broad expanses of shallow water, may have upon the large vessel's steering.

While in the pilot house of one of the big sound liners, it surprised me to hear the "slow-down-bell" as we approached a mud-channel buoy which was a mile from the nearest land. The peculiar feeling under one's feet as a vessel passes from deep to shoal water became apparent. Knowing there was nearly twice the vessel's draft of water I asked why the "slow-down" was given and was told that the vessel would not steer in the comparatively narrow channel if at full speed. We made the harbor and dock, and returned through the same channel proceeding under one bell. When we had cleared the land, though still in the channel, full speed was rung in, and a moment later the quartermaster was ordered to shift the course to E. x N. Not seeing any perceptible change in the course the order was repeated with some vigor: "The wheel is hard over, Sir," answered the quartermaster. Hard over it was kept, the great steamer, though there was plenty water either side of the channel, swerved not a particle from straight ahead until the channel, which was a natural one, deepened and widened enough to free her from the suction of the narrow part.

We will leave the deep water and enter a place having channels and flats. Ahead of us is a boat which is creating quite a swell. Soon we perceive a part only of her swell breaking. There will be a small shoal under that place. The "heft" of the swell and the manner of its breaking will indicate the depth of the water. A small swell breaking indicates very shoal water. If the wave breaks quickly after reaching the shoal the bank is steep. Should the break occur after the wave has run in some distance, the slope is gradual.

While running, our attention may be attracted by the stern of our boat having the appearance of having settled quite decidedly in the water, and an unusually high stern wave following us. The boat is then in very shoal water. Should the stern wave be remarkably high, the skeg is probably already dragging. A very convenient thing for sounding over flats or shallows is a stick of six or eight feet in length. By thrusting it slantingly forward into the water alongside it will go to the bottom of itself no matter what the speed of the boat.

It may be that in going over a shallow place, or one with weeds, the screen over the water intake will become clogged. This will soon be made apparent by the heating of the water jacket. Reversing the motor will free the wheel and will generally clear the screen. If it does not, scrape it with a stick over the side.

As we advance and the channel becomes of less importance the aids to navigation are not to be found and we are left to our own resources. Careful observation will show that the heaviest waves (not breakers) are in the deepest water and that they are confined to fairly well defined lanes, so we follow them up and up until they become only tiny ripples and the water not deep enough to float a rowboat, yet they will hold the proportion and be heavy in comparison with the waves in the more shallow waters bordering. This system is very useful in waters which are discolored. In clear water the channels and deepest parts can better be made out from a high place, the higher the better. From a schooner's deck a swordfish can be seen but a foot below the surface, if at all. From aloft, at the mast head, it can be seen eight to ten feet down.

All of the foregoing are aids in piloting and the most of them apply to lakes and rivers as well as the sea.

Wind indications on the water are not of such importance to a motor boatman as to the skipper of a sailboat, yet there are occasions when an "eye to windward" is as necessary with the motor boat as with any, and this is particularly so with those having canopy tops, or glass cabins. Such occasions seldom arise without warning. A white squall is without cloud attendant, but may easily be seen if it comes from across land by the great cloud of dust it creates, or if coming across water, by the white line of foam in its advance. This or any other style of wind-burst should be met bow to.

Soft, fleecy clouds indicate easy weather with no immediate change. Let the clouds be sharp and well defined, with one of them making itself decidedly more prominent than the rest, and you may be sure of a hard squall and a drenching before long.

The appearance of small, well defined white clouds, well scattered, in the western sky, near the time of sunset, tells of fine weather in the morning. A dull red western sky tells of the reverse and is fairly sure to bring wind during the night. When a mackerel back sky is seen rain is to come, but the good weather will hold until after the clouds begin to merge; then the rain is not far away.

It may save one a wetting many times if the distant clouds are observed. Should there be a gray mass below any of the clouds, see if below the grayness there is a lighter gray which reaches well down toward; or entirely

to, the earth, the lower grayness having lines in it which may be straight down but are generally well curved. It is rain. As it approaches the lines are lost, also the appearance of a lower grayness and the whole space from cloud to earth becomes a more or less dense gray. The rain is then coming fast and will reach one within a few minutes.

Occasionally during the summer months a rolling line of cloud may be seen across the sky. If the front of the roll is thin and the grayness back of it also, there will be a mild change of weather, but the straight line of rolling cloud seldom comes in that way. Its front will be from gray to black, its rear a dense gray or a billowy mass. If possible, run into a good shelter or a lee and anchor, if not, make all snug, and by watching its approach, which may be easily seen on the surface of the water, you may know when to turn the boat to meet it. These "pieces of weather" are short-lived, though often violent.

Another kind of weather from which it is wise to run, or not to start out in, is told by the grayish cloud sky which finally assumes a few coppery tints and almost surely has a few very small but very black clouds floating around. The little ones seem to have a mission of their own and strike one with some awe as they float slowly about below the bulkier masses. While they are clear and distinct everything remains quiet and the air still; so quiet indeed that it oppresses the man in the boat and his eye is riveted on its every motion. While watching, a change begins, rapid and vivid are its motions as with lightning-like rapidity the small cloud expands toward the one or two other like clouds which advance to meet it and together they obliterate all else and then comes an overwhelming blast of wind which may or may not be filled with rain, the skipper neither knowing or caring as the furious wind crowds the spray into his eyes and nostrils, aye, and into the mouth which he has opened that he may breathe.

Before such a wind breaks, watch the water swell until you get the wind's direction, then hold the boat's head into it, keeping it there with the motor going slowly, but fast enough to be sure that it will not stop. It is seldom that any such wind will last in full strength over ten minutes.

In the fall, or early spring when the air is cold you may start out before dawn, when the air is still and the water flat. As the sun nears the horizon a gentle breeze starts, generally from a northerly or northwesterly direction. As the sun rises and everything is bathed in its bright light an island may be seen which has the appearance of being divided into several smaller islands with water flowing between, or a vessel may be seen in the distance sailing along serenely with only its bow and stern showing above the water. There will be no peace that day, for by ten o'clock the breeze will be from three-quarters to a full gale.

Another well known indication is the ring around the moon. If of large diameter, it may mean nothing but a little dampness in the air. If the ring is clearly defined and narrow, the close proximity of a storm is certain.

Another indication produced by the same cause, is not so well known. It is to be found in the appearance of the stars. If they are very bright and clear and dancing or twinkling sharply, a blow is at hand.

A gray section reaching from any part of the horizon well upward toward the zenith and changing later in its lower part to a blue black will bring a violent wind within a few hours.

In the foregoing we have considered the storms which menace and threaten. There is another variety, a kind which approaches with a smile and the softest kind of greetings. The day is pleasant, the sky fair, the heat temperate. The day following is one of those brilliant ones which make one glad to be alive. At the beaches and other watering places the throngs are enchanted with the clearness of the sky, and the distinctness with which distant objects can be seen. But the same phenomena which exalt the land folk depress the man of the water. The latter breaks out his anchor the next morning and lays his first course with misgivings. The day is yet fair, but the shadow cast by the sun is not clean cut because of a certain undefinable murk in the air. As he holds the course, the sun disappears though there is no cloud in the sky. A gentle breeze has started which under ordinary conditions would be most welcome. He gets out the spray wings for the boat and dons his oilers, the breeze meanwhile acting in the most ordinary manner, and the ripple becoming moderate waves from which an occasional splash finds its way into the cockpit, causing the storm canvas to be put in place with extreme care for later there will be neither opportunity nor perhaps ability to replace it if wrenched from its place.

A few hours out from port and the sun has completely disappeared; a mist is in the air, yet it is not thick and the horizon can be seen. Though the boat is careening over the waves in the comfortable manner all top hamper has been removed or carefully lashed and any removable weights, including the anchor, sent below. The breeze is growing steadily, without gusts while the rebound of the waves from the shore has caused the skipper to go off into deep water. When noon arrives there is no longer any question about what is coming. The force of a storm is already felt, but such is its steadiness that a tremendous reserve is indicated. A hasty lunch is prepared, for it is recognized that it may be some time before conditions will permit another. The boat is going over the seas with a long lifting sweep and a quick rushing descent, which shows that the time for careful handling is fast drawing nigh, and in order that the work may be performed while the motion of the boat is such that tools may be handled the drouge (sea anchor) is got ready. The wind, while strong is steady, which is typical of these storms and it is apt to remain so until the blow attains its maximum strength.

Up to this time the horizon has been fairly clear. There now appears to windward a grayness which tells that the full strength of the storm is at hand. Slowly it comes, then faster and faster it sweeps down and encompasses the boat, shutting out all objects.

With the mist have come furious bursts of wind and rain. The handling of the boat taxes the skipper's ability to the utmost. The wind begins to back and continues until it has shifted four points to the northward and the skipper finds himself laboring in a blow which from its manner of growth and backing is bound to continue for two days or more. It is the worst type of New England northeaster.

Bullet, a Western Speed Boat.

THE speed boat shown in the accompanying photograph was designed and built by H. E. Havlick, of Seattle, and is interesting from the fact that the model is rather unusual, being very sharp in the bow and having an extremely rounded bottom. Although the craft has a beam of only 3 feet 4 inches, and a length of 28 feet, she is very steady and seaworthy. The hull is painted a dull black, and with sixteen feet of decking, forward and aft, the boat has a long rakish appearance, very pleasing to the eye when she is under full speed.

The cockpit will seat twelve persons comfortably and automobile controls are run

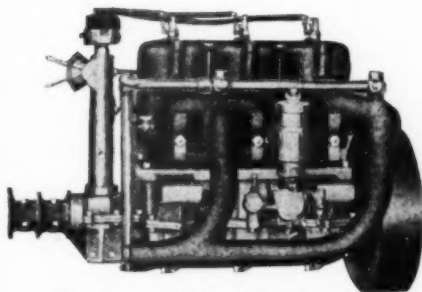


Bullet doing twenty miles an hour.

through the forward bulkhead to the operator's seat at the wheel. The power is supplied by a 4-cycle, 4-cylinder motor, having a bore and stroke each of 4½ inches, of light weight, and is capable of driving the boat at a speed of considerably better than 20 miles per hour. The hull is strongly constructed of cedar with ribs of oak, closely spaced, and with the engine bed extending two-thirds the length of the hull, yet notwithstanding this solid construction, the total weight of the hull is only a trifle over 400 pounds.

The accompanying illustration shows Bullet, driven by her owner, doing twenty miles an hour.

Motors for Motor Boats.



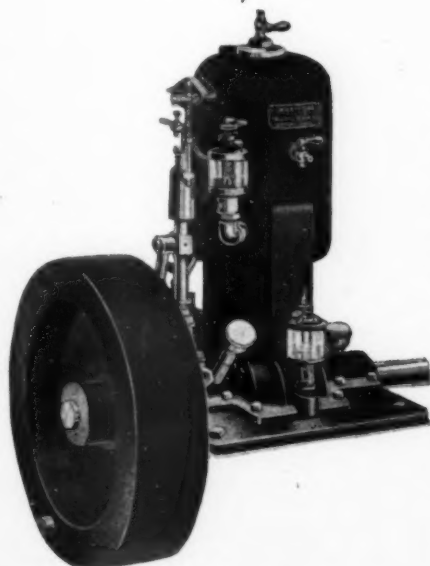
The three-cylinder Roberts motor.

The Roberts Motor.

The Roberts Motor Co., of Sandusky, Ohio, is producing a complete line of marine motors of the two-cycle type made in sizes ranging from 1½ to 60 horsepower. The illustration shows the three-cylinder type. As is seen, the construction is compact, simple and business-like in appearance. While used extensively for racing these engines are designed for all around service, and the company guarantees that they will be free from back fire and base explosions. Aluminum is used for the crankcase, which keeps the weight down, but in no way have strength and durability been sacrificed to gain this end.

The Two-Cycle Hartford.

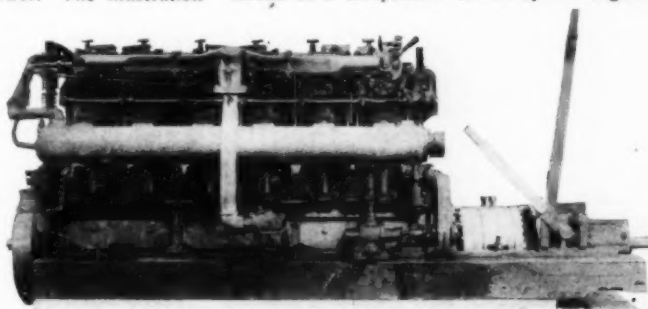
The engine shown in the accompanying cut is a product of the Gray and Prior Machine Company, of Hartford, Conn. These engines are all of the two-cycle type and are equipped with make-and-break ignition system of a special design. The ignitor, as will be noticed in the cut, is entirely self-contained and the whole mechanism can be removed by loosening the two screws which hold it in place. The body of the ignitor is made of phosphor bronze and all working parts are interchangeable, so that they may be easily replaced in an emergency. All Hartford engines are salt water fitted and necessary accessories are included in the equipment.



The two-cycle Hartford.

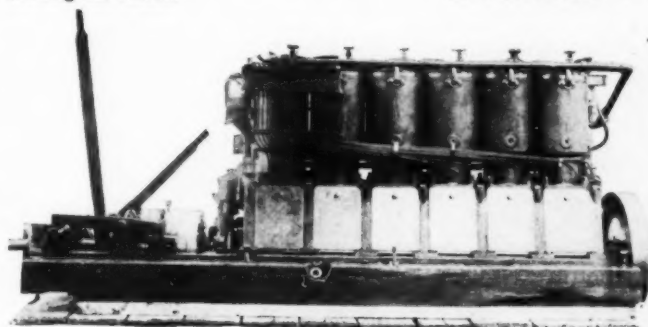
New Six-Cylinder Speedway.

The two views herewith are of one of the latest designs of Speedway engines, capable of developing 115 brake h.p. at 600 r.p.m. The design is substantial in every way with the one-piece bed of semi-circular section cast with extension for clutch and thrust bearing, sectional frame and cylinders with separable heads. The cylinder dimensions are 7½ in. diameter by 9 in. stroke. Water jacketing is thorough. Water from the pump after passing the cylinder jacket enters the heads by means of outside connections; from there it passes to the water jacketed exhaust manifold. The ignition is a perfect make-and-break system, the current being furnished by a Bosch magneto. By means of the air starting mechanism it is possible to start on 50 lbs. of air. The air tank is kept supplied by means of a compressor driven by the engine.



Port side of the new 6-cylinder Speedway.

A McCord forced feed oiler furnishes oil to main bearings, crank pins and cylinders. A governor operating a butterfly valve in the intake pipe prevents racing of engine when working the clutch.

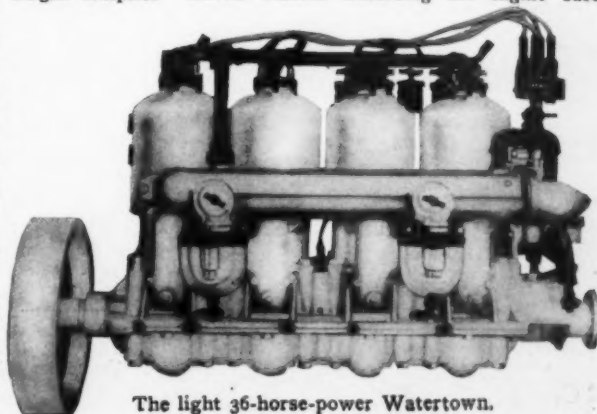


Starboard side of Speedway engine.

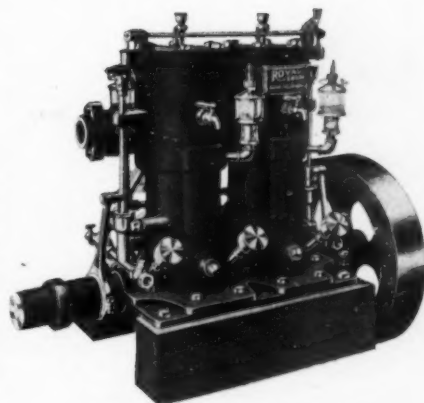
The Light Watertown.

The Watertown Engine Company, of Watertown, N. Y., has placed upon the market a new design of light weight engine rated at 36 horsepower, which is compact and attractive in appearance. This motor is built only in four-cylinder models and weighs complete 344½ pounds. 36 horsepower is developed at a speed of 1,000 r.p.m., which is the normal rate for the motor. A double ignition system is used, consisting of the Atwater Kent Unisarker and a 4-cylinder coil. Two carbureters are used, and these are made of aluminum to still further reduce the weight of the complete outfit.

Although in the design of this engine lightness and speed were the principal considerations, strength and durability have not been sacrificed,



The light 36-horse-power Watertown.



A new two-cylinder Royal.

The New Royal Engine.

The illustration herewith shows one of the latest motors made by the Royal Engine Company, of Bridgeport, Conn. These engines are of the two-port type and are equipped with a make-and-break spark ignition, synchronized by means of a cam spark control so that both cylinders are kept in unison regardless of whether the spark is early or late. A feature of the motor is the use of a water jacketed exhaust manifold in which are bronze check valves. The use of these valves prevents rusting in the manifold, a source of much annoyance when it occurs.

The 1910 Dodge Engine.

The Dodge Engine Co., of Boston, Mass., are offering in their 1910 model Dodge engine a marine motor that shows that they have succeeded in designing a simple and economical engine for all-round use. It is built on the 2-cycle, 3-port, open crankcase style, and special feature of take-apart-ability is carried out in several ways, all of which will be of great aid to the operator in event of making repairs. The cylinder head, for instance, may readily be taken off at any time, for the purpose of removing

burnt carbon, or making repairs, without moving other connections, thus eliminating all danger of leaky joints. After removing the cylinder head, the piston may also be taken out, without disturbing the cylinder in any way. The bearings are made interchangeable, so that at any time one or all may be removed without disturbing the engine base.

"Did You Know It?"

Will a Boat Float in Less than Its Weight of Water and Will it Turn in a Circle?
A Doubter Answered.

To the Editor of MOTOR BOATING, Sir: In your January issue of MOTOR BOATING there appears an article entitled, "Did You Know It?" by Mr. Thomas L. White. Mr. White's first proposition is that a boat will float in less than its own weight of water. This proposition is, of course, so absurd that it requires no argument to refute it.

It is in the second matter that he described to your readers, that the writer would like to ask a further explanation from Mr. White. According to his proposition, a boat turning with a fixed helm describes, not a circle, but an expanding spiral. If this is true, it is obvious that after a vessel has made, say 100 turns of the spiral, she will be on a curve of very large radius. If she keeps on turning with this fixed helm sufficiently long, the circle will become so large as to be to all intents and purposes, for short distances, a straight line; so that we have the interesting fact, if we can believe Mr. White, that the vessel would be traveling in practically a straight line, although at all times her helm has been hard over. Either Mr. White means something different from that which he states or else he has propounded an alleged fact which can be reduced to absurdity.

I trust that the writer may be able to see something further in your valuable publication in explanation of this interesting law which appears to render the steering of vessels an even more complicated problem than even the most experienced pilot has supposed it to be.

New Haven, Conn.

[Our correspondent's objections to the statements in Mr. White's article have been submitted to the author and we print below his rejoinder. It may be of interest to our correspondent and to our readers in general to know that we have been informed that since the appearance of Mr. White's article his contention that a ship can float in less than its own weight of water was practically tested out one evening by the navigation class of the Yachtsman's Club of Philadelphia. This was done with the help of a model and an aquarium. By means of gravel a dock was constructed and it was shown that the position taken up in the article is entirely correct, the model floating under the conditions without difficulty.—Ed.]

OSBORN A. DAY.

To the Editor:

With respect to the objection raised by your correspondent that it is impossible on the face of it for a boat to float in less than its own weight of water, it is really almost impossible to do more than refer him to the original passage in the article which he criticizes. A boat is entirely supported by the vertical component of the pressure exerted on its wet surface by the water. Now, at any point this pressure is proportional to the depth of that point below the free surface of the water and on nothing else. It is a function of no other quantity and is absolutely independent of the depth of water below or of the quantity of water absolutely present. What your correspondent is thinking of is the admitted fact that if the boat were taken bodily out of the water and the space which it occupied, that is its displacement, filled with water, then the water which would have to be added to take the place of the boat would equal it in weight. As to the reason for this and for the general theory of flotation, Besant or any other standard authority on hydrostatics should be consulted.

Your correspondent also takes exception to the statement in my article that if the rudder of a boat be set at a fixed angle its path will be a spiral and not a circle. Perhaps the two following quotations will throw some light on this phenomenon:

"The normal pressure which is produced on an oblique plane by its motion through the water is taken advantage of in the ordinary rudder. Since the flow of the water to the rudder is guided by the form of the stern of the vessel, the distribution of pressure is different to that occurring in the case of a free plane moving obliquely without attachments. In any case, however, the effect of the motion is to produce a distribution of normal pressure over the rudder which has a single resultant tending to turn it about its point of attachment to the stern post. This action is being resisted by the rudder chains and the net effect is that of a single force acting on the vessel at some point on the rudder and in a direction perpendicular to the rudder. This is equivalent to an equal and parallel force applied at the center of gravity of the boat, together with a couple tending to rotate the vessel about its center of gravity. It is

this latter which tends to turn the vessel. The single force simply tends to produce a bodily drift of the vessel in a direction parallel to the original normal pressure of the water on the rudder. This explains why a constant rudder angle will not enable a boat to complete a circle."

Hydraulics and its Application.—A. H. Gibson, New York, 1906. Page 369.

"The path traversed by the center of gravity of a ship while she turns from a straight course through 180°—that is reverses her course—is usually more or less spiral and not a circular arc."

Manual of Naval Architecture.—W. H. White, Naval Constructor, Royal Navy, London, 1886. Page 631.

The latter authority also says at page 619: "Purely theoretical investigation does not enable one to lay down the path traversed by the center of gravity of a ship in turning from a straight course under the influence of the rudder. The equations of motion can only be framed in general terms owing to our ignorance of the character of the resistance offered by the water."

Taking it altogether the question of the path of a boat under such circumstances affords a very interesting problem, and one on which the practical opinion and experience of the man at the tiller have a valuable bearing.

As to the particular argument advanced by your correspondent it does not lie. There is no mention in the article of going round and round. All that is asserted is that the path of a ship with a fixed rudder angle is not an arc of a circle, but an expanding spiral, the connotation of the term "expanding" being the opposite of converging, i. e., that the path traced lies outside the true circular path. Also the argument advanced by your correspondent, even if it applied, is invalid. Many spirals have an asymptotic circle so that it is possible to travel along them to infinity without the path straightening out beyond a degree defined by the fact that the radius of curvature at infinity is equal to the radius of the asymptotic circle in question.

The drawing in the original article was purposely exaggerated to show clearly the nature of the tendency illustrated and it is possible that it is this fact interpreted too literally that has proved misleading. THOMAS L. WHITE.

Motor Boating Calendar.

Motor Boat Shows of 1910.

Seattle. Under the auspices of the Pacific International Power Boat Association, the Seattle Motor Boat Sportsmen's Show will be held from Feb. 8 to 12 at the mammoth skating rink on the corner of Fourth Ave. and Seneca St. Communications should be addressed to the association room, 610, Coleman Building.

New York. The motor boat show of the National Association of Engine and Boat manufacturers will open at Madison Square Garden at noon on February 19, and close at 11 P. M. on February 26. All communications regarding floor space, etc., should be addressed to the manager of the show, J. A. H. Dressel, 138 W. 42d Street, New York.

Detroit. The Detroit Motor Boat and Engine Show will be held at the Light Guard Armory during the week from February 28 to March 5, inclusive. All communications should be addressed to A. B. Moulder, manager, Detroit, Mich.

Buffalo. Buffalo's third annual Power Boat and Sportsmen's Show will be held at Convention Hall, March 21 to 30, under the management of the Buffalo Launch Club. Communications should be addressed to Dai H. Lewis, 760 Main Street, Buffalo.

Chicago. The Chicago Show of the Western Manufacturers (sanctioned by the National Association of Engine and Boat Manufacturers) will be held March 26 to April 2 in the First Regiment Armory, 16th Street and Michigan Avenue. This will be under the management of Chester I. Campbell, who also manages the Boston show.

Cincinnati. National Gas and Gasoline Engine Trades Association and exhibition at the Sinton Hotel, June 13 to 16th. Particulars in regard to the convention may be obtained from the office of the association, Cincinnati, O.

Racing Events for 1910.

The Palm Beach regatta will be held under the auspices of the Palm Beach Power Boat Association at Lake Worth, Palm Beach, Florida, from March 15th to 18th. The schedule follows:

Tuesday, March 15.—Speed Record Trial, average of 6 trials over the mile course, Palm Beach Cup; Speed Contest, Florida designed and constructed boats only, no time allowance, 9 miles, the Association Cups; Class A, all boats, A. P. B. A. handicap, 9 miles.

Wednesday, March 16.—Class B. For boats under 32 feet L. W. L. 4½ miles. Class C. For boats over 32 feet L. W. L. 4½ miles.

Class BC. For all boats, 4½ miles. Class BC.. For boats of all lengths, 18 miles.

Thursday, March 17.—Class D. For boats under 17 miles speed, 4½ miles. Class E. For boats over 17 miles speed, 4½ miles. Class DE. For all boats over 12 miles speed, 9 miles. Speed Economy Test.

Friday, March 18.—Endurance Contest for all boats over 20 miles speed, 103.5 miles. Palm Beach Grand Prize; Consolation Race, all boats over 12 miles speed, 4½ miles.

The Seventh International motor boat meeting at Monaco, France, will be held from April 1st to 4th. Prizes will aggregate \$24,000 in value.

The Philadelphia-Havana race, covering a distance of about 1,300 miles, will start on Saturday, May 21st, and is open to seaworthy boats of from 50 to 100 feet over all.

The Mississippi Valley Power Boat Association will hold a regatta at Peoria, Ill., on July 4th, 5th and 6th. Prizes aggregating more than \$4,000 in value will be offered.

The British International race will be held by the Motor Boat Club of America on Saturday, August 20th.

An Alaska-Seattle race will be held some time during August. This will cover a distance of over 1,000 miles over a rather open course, from Juneau, Alaska, to Seattle.

New Things for Motor Boatmen.

New Attachments and Accessories That are Offered to the Man With a Boat.
The Month's Production of Devices Designed as Aids to Motor Boating.

[Under this heading will appear each month descriptions and, whenever possible, illustrations of the various devices designed to add to the pleasure and comfort of motor boating which have been brought out since the previous issue. It should be kept in mind that the department in any one issue is, as it were, only one month's instalment of the many useful things on the market, and that it will be well to consult the previous issues of MOTOR BOATING which will form, together, a very complete illustrated directory of the things the motorboatman needs.—In writing the makers of the articles shown, if our readers will mention MOTOR BOATING, they will receive special attention.]

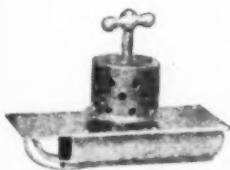


Fig. 1.—Pyke Automatic Boat Drainer

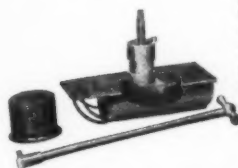


Fig. 2.—Pyke Drainer Parts.



Fig. 3.—Shawmut Mica Spark Plug.



Fig. 4.—The Wico Igniter.



Fig. 5.—Royal Multiplex Lamp and Attachment.

The Pyke Automatic Boat Drainer (Figs. 1 and 2).—The Racine Boat Company, Racine, Wis.—The Pyke automatic boat drainer attached to the bottom of motor boats of a speed of 6½ miles or faster, will quickly draw off any accumulation of leakage, rain or in-wash water. It is fitted with an automatic safety valve, or shut-off, which closes and prevents the water from coming in, the instant the boat is drained or at rest, making its safety absolute. It is made of brass throughout and is attached to the outside bottom and parallel with keel. The valve may be turned on or off when desired by an extension wrench, which reaches above the floor. Drainer No. 1 is adapted for use on boats of moderate speed and is capable of draining a barrel of water in five to seven minutes. This model sells for \$5 and the No. 3, for faster boats, is listed at \$8.

Shawmut Mica Spark Plug (Fig. 3).—Blake Electrical Company, 88 Purchase Street, Boston Mass. The Shawmut mica plug is fitted with a perfectly insulated core with an air space on the ignition end and is tapped in such a way as to prevent the accumulation of soot and oil, both of which eventually have the tendency to cause a short circuit. The sparking points are made of selected meteor wire, which has many of the desirable qualities of platinum and is in some respects superior. It has great durability and is not easily corroded. This company makes a porcelain plug which is interchangeable with the mica one, as the steel shells of both are the same. The price for either porcelain or mica is \$1.

The Wico Igniter (Fig. 4).—The Waterbury Igniter Company, Springfield, Mass. The Wico igniter is an ignition system combining the functions of both the battery and magneto in one compact device. A set of flat bar magnets, always in close circuits, take the place of a storage battery. Two stationary coils of the usual type and a cam, take the place of the circuit breaker. It is claimed that with this device the heat and voltage of the spark produced are entirely independent of the speed of the engine.

Royal Multiplex Lamp and Attachment (Fig. 5).—The Motor Boat Equipment Company, New York City. The attachment shown herewith has been designed to adapt oil or acetylene burners, for the use of electric lights. A set of these lamps for headlight and side lights can be run from the regular ignition storage battery if desired, and each of the following outfits consists of two lamps, two sockets and a switch. The four candlepower set for a voltage of from 4 to 12 sells for \$1.50. The 16 candlepower for a voltage of from 4 to 8 for \$4; the 32 candlepower for the same voltage for \$5 and the 40 candlepower for a voltage of from 4 to 12 sells for \$5.50.

Linaweaver's Primer. A. H. Linaweaver, 242 South Main Street, Findlay, Ohio. This device consists of a reservoir at the top, which contains from four to six ounces of gasoline, and which may be put in communication with the charge chamber by means of a reservoir cock. Another mixing cock below serves the double purpose of admitting the charge of gasoline into the intake, common to all cylinders, and at the same time opening up an air vent. Under these conditions a rich mixture is drawn into the cylinders upon cranking, and starting the engine is thus facilitated. As soon as the engine has started, the air vent is closed. It is claimed for this primer which has already been thoroughly tried out.

The Willard Dome Light (Fig. 6).—The Willard Storage Battery Company, Cleveland,

Ohio. This company is turning out a very attractive dome light with frosted shade, having the design cut in the glass. It is also furnished with a holoplane distributor shade, as shown in the accompanying illustration. The fitting is especially desirable for motor boat cabin use in view of the fact that the entire fitting has a depth of but 1½ inches when the frosted shade is used and but little more with the one here illustrated.



Fig. 6.—The Willard Dome Light.

The Cooley Spray Hood (Fig. 7).—Cooley Manufacturing Company, 127 Federal Street, Boston, Mass. With the spray hood illustrated herewith an open boat can be converted into a cabin cruiser secure from rain or spray. All hoods are fitted with windows forward so that there is no trouble in seeing on both sides and straight ahead when the hood is in place. They are made of khaki duck which is superior to white duck, both in appearance and in waterproof and mildew resisting qualities. With the equipment shown herewith several arrangements are possible. The first illustration shows the forward bows down, and the side curtains raised, making a wind shield and awning combined. The second illustration shows the sides down and the front bows raised, giving protection on the sides and full view forward. The third illustration shows the hood with sides and front down. All fittings are strong and heavily galvanized and remain in place without the use of straps. The outfit ranges in price from \$20 to \$40, according to size.

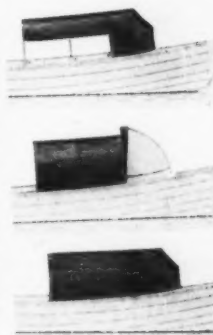


Fig. 7.—The Cooley Spray Hood.

Milwaukee Marine Muffler (Fig. 8).—Garage Equipment Manufacturing Company, Milwaukee, Wis. It is claimed for the muffler illustrated herewith that it absolutely eliminates both the noise and back pressure from the exhaust. The heads are made of malleable iron and the concentric tubes are made of heavy sheet steel and securely fastened at the seams. These tubes are perforated at opposite ends by many small holes, thus allowing the gas to expand from one tube to the other very rapidly. This muffler is provided with a cut-out which is actuated by a lever as shown in illustration. This device is made in sizes ranging from 6 by 16 inches to 8 by 30 inches, according to the size and number of cylinders of the engine and sells from \$4.25 to \$5.95.



Fig. 8.—Milwaukee Marine Muffler.

Hodgkins Oar Rack (Fig. 9).—Ernest G. Hodgkins, 109 Purchase Street, Boston, Mass. The accompanying illustration shows a neat and safe method of locking oars and rowlocks when not in use. It can be fastened to the wall of the club house or locked to the seat of a tender or the deck or cabin of a large boat, and is made in several styles and all types of rowlocks. Style A locks the oars with or without the rowlocks; style B requires the use of the rowlocks to form a part of the locking device and style C is the same as style B with the exception that a chain is used instead of the pivoted arms and is adapted for extra large oars and where it is desirable to fasten a boat hook or small anchor with them. Style A is illustrated herewith. All styles may be had in either galvanized iron, plain brass, polished brass or nickel plated, and range in prices from 75c. to \$3.50, according to size and material.



Fig. 9.—Hodgkins Oar Rack.

Baldrige Reverse Gear (Fig. 10).—Smith Baldrige Machine Company, 61 Amsterdam Street, Detroit, Mich. The reverse gear shown herewith contains nothing complicated, nothing delicate and nothing freaky, but as the illustration shows, is perfectly simple and compact. It was designed for hard service, for any size boat and has been thoroughly tried out by a large number of users.



Fig. 10.—Baldrige Reverse Gear.



Fig. 11.—The Puritan Switch.

The Puritan Switch (Fig. 11).—S. H. Couch Company, Inc., 156 Purchase Street, Boston, Mass. This switch, which may be seen in the exhibit of Stuart Howland Company at the Boston Show, is unique in that it is front connected. This feature makes it possible to examine the connections by merely removing the cover of the switch without, as is usually the case, the necessity of removing the complete switch. The Puritan may be used either for battery and magneto or for two batteries. The price is \$1.



Fig. 12.—The Pyrene Fire Extinguisher.

The Pyrene Fire Extinguisher (Fig. 12).—M. L. Snyder, 9 North 4th Street, Philadelphia, Pa. Pyrene is a fire extinguisher which will instantly put out burning benzine, gasoline, naphtha, calcium carbide, electrical fires or any fire regardless of source not requiring the services of the Fire Department. The contents of the extinguisher will not, it is claimed, discolor the most delicate fabric or the polish and finish of the finest woodwork. It will not freeze at any temperature above 60 degrees below zero and never deteriorates. It weighs four pounds complete and needs no recharging until fully discharged.



Fig. 13.—Reliance Magneto Plug.

Reliance Magneto Plug (Fig. 13).—Jeffrey-DeWitt Company, Newark, N. J. The plug here illustrated is the latest addition to the product of the above company, and as its name implies is especially adapted for the requirements of the magneto. The J-D line of spark plugs, which every motor boatman has seen sparking under water at the various shows, are reliably made of the best materials. The porcelain used is a special heat proof composition manufactured by the same company. The Reliance plug sells for \$1 and besides being especially adapted for use with the magneto is recommended wherever an excessive amount of oil is used, as its construction prevents the accumulation of soot around the points.



Fig. 14.—Brown Combination Oil and Grease Gun.

Brown Combination Oil and Grease Gun (Fig. 14).—The Brown Company, Syracuse, N. Y. This grease gun may be used either for oil or grease; for oil the T handle and a smaller spout are used; for grease the hand wheel and a larger spout. It is 8 inches long by 1 1/4 inches in diameter with a capacity of 8 ounces. Seamless brass tubing is employed for the shell and the piston is of ground brass. By use of the hand wheel, which is connected to the piston by means of rack and pinion, a much greater leverage can be obtained than is possible with the ordinary handle, and at the same time there is less waste of time than with the old screw cap variety.

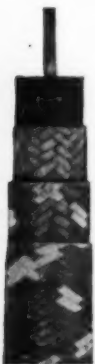


Fig. 15.—Diamond Igniter Cable.

Diamond Igniter Cable (Fig. 15).—Diamond Rubber Company. In addition to their well-known line of automobile tires and accessories, the Diamond Rubber Company have lately put on the market a complete line of igniter cables. The class A, 3/4 inch, secondary cable, shown herewith, is made up of 37 B. & S. No. 30 wires, insulated with an extremely high grade rubber compound with a black, glazed braid over all. The same general construction is applied to the cables for low tension circuits with, of course, slightly heavier wire and a fewer number of strands.



Fig. 16.—Shawver Socket Wrench.

The Shawver Socket Wrench (Fig. 16).—The Shawver Company, Springfield, Ohio. This wrench consists of a hardened steel socket and a movable handle which works on trunnions. The handle may be locked when in the central position, forming a rigid wrench, or may be used in any other position desired, thus facilitating the loosening of inaccessible nuts. It is 9 inches over all, weighs one pound, is finished in nickel plate and sells for \$1.25.

Boston Auto Clocks.—Boston Clock Co., 16 State Street, Boston, Mass. This company has lately put on the market a line of clocks particularly adapted to marine conditions. All these clocks are of the eight-day type and have "Braguet" hair-springs, compensating balances and seven-jeweled escapements. The movements are very rigidly built of high grade stock and are secured to the back of the case by screws which are completely hidden when the clock is mounted on the coaming. The cases are waterproof and can be had either in polished brass or in nickel finish. The dials are

of high quality brass, etched and silvered. The prices range from \$15 to \$27.

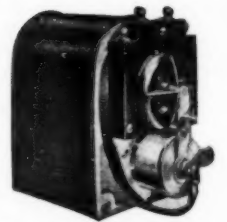


Fig. 17.—Connecticut Magneto.

Connecticut Magneto (Fig. 17).—United Manufacturers, Inc., Broadway and 76th Street, New York. The Connecticut is so constructed that it is only necessary to have one small wire from the magneto to the switch, the secondary wires being connected direct to the plugs. The transformer is encased in a metal tube and threaded into the magneto, and is thereby protected from injury and moisture. The magneto can be changed for right or left running, by simply loosening three screws, and the whole machine is so constructed as to be practically dust and water-proof.

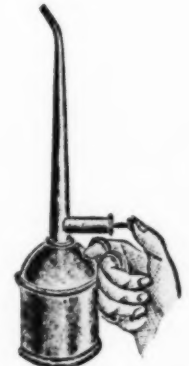


Fig. 18.—The Cannon Oiler.

The Cannon Oiler (Fig. 18).—R. E. Bloomer, Keithsburg, Ill. The Cannon oiler meets the demand for an oil can in which the oil is entirely controlled by the operator, no matter in what position the can is held. It is possible with this device to oil inaccessible places and without the necessity of waiting for the oil to run down the tube, as it is forced out by simply pressing on the plunger. When the pressure is released the flow of oil immediately stops. The spout being always full of oil does not readily clog and one pressure of the plunger will force out any obstruction. This oiler is made in both tin and brass, in 6, 8, 12 and 20 inch lengths, and the prices range from 35c. to \$1, according to size and material.

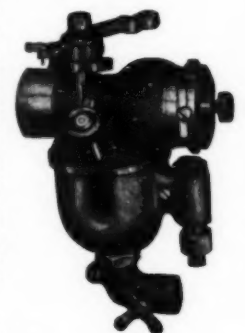


Fig. 19.—Schebler Carbureter.

Schebler Carbureter (Fig. 19).—Wheeler and Schebler, Indianapolis, Ind. The model H Schebler carbureter here illustrated is made along thoroughly practical lines and cannot easily be damaged. The air for low speed is received from a tube passing through the center of the float chamber. The tube grows smaller at the discharge point of the spraying nozzle leaving only a small aperture. The needle valve has two adjustments, one for high and one for low speed. By the loosening of one screw the throttle lever can be set at any angle desired, thus making the connection with the controlling lever in the most direct manner, doing away as much as possible with lost motion. The model H carbureter in the 3/4-inch size sells for \$15 and in the 1-inch size for \$16.

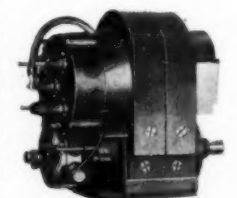


Fig. 20.—Pfanstiehl Magneto.

Pfanstiehl Magneto (Fig. 20).—Pfanstiehl Electric Laboratory, North Chicago, Ill. This magneto is a self-contained high tension machine requiring no coil. The machine is geared to the engine at crankshaft speed. In action the magneto works as follows: A low tension current is generated in the armature, passes across the iridium platinum breaker points, then into an especially constructed transformer which is located underneath the magnets, where the high tension current is generated. The latter current is fed to the spark plugs through a carefully constructed distributor. A distinctive feature of this machine is the fact that at a very low speed it will give an efficient spark.



Fig. 21.—Hydro Carbon Carbureter.

Hydro Carbon Carbureter (Fig. 21).—The Hydro Carbon Machine Company, 431 Bloomfield Street, Newark, N. J. The Hydro carbon high and low speed floatless carbureter, type B, illustrated herewith, has two needles, one of which is constantly in play. As the power increases by opening the throttle the second needle is automatically brought into play, which insures a more perfect mixture than it is possible to obtain where one needle valve controls the entire range. The one-inch size sells for \$10, the 1 1/4-inch size for \$12 and the 1 3/4-inch size for \$14.

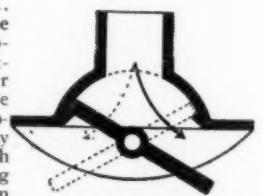


Fig. 22.—Glens Falls Submerged Exhaust Outlet.

The Glens Falls Submerged Exhaust Outlet (Fig. 22).—Mechanical Devices Co., Glens Falls, New York. It is claimed for the device here illustrated that it solves the problem of a perfectly free discharge of the exhaust gases when the boat is running either forward or backward. It presents very little resistance to the water and the balanced operating valve is automatic, being actuated by the flow of water in either direction, which tends to create a vacuum effectually doing away with the back pressure. It is made in the following pipe sizes: 1 inch, 1 1/4 inch, 1 1/2 inch, 2 inch, 2 1/2 inch and 3 inch, selling for the high tension current is generated.



General Trade Notes.

The Sterling Engine Company, of Buffalo, have recently purchased a large plot of ground adjoining their property on Niagara Street, having a frontage of 163 feet and a depth of 198 feet. A three story brick addition to their present plant will be constructed upon the new land and it is hoped to have this in readiness in time to handle the spring output of engines.

The Erd Motor Co., of Saginaw, Mich., have plans under consideration for the erection of a new plant for the manufacture of their motors on Niagara Street. The site is of sufficient size to permit of additions as they are needed. The machinery in the new building will be wholly on the ground floor so that the engines, when complete, may be handled with the greatest amount of ease. One wing of the new factory will contain a boiler shop, testing rooms and blacksmith shop, and the main offices will be in a wing on the opposite side of the main building.

The Electric Launch Co., of Bayonne, N. J., will hereafter act as sole selling agents for this country for the American and British gasoline marine engines, which will be furnished in two sizes, a four-cylinder, 40 horsepower, and a six-cylinder, 60 horsepower. Some well-known boats equipped with these motors are the Den, winner of the 1909 New York-Poughkeepsie race; the Vim, winner of the 1908 New York-Poughkeepsie race; the Hadajr and the Haida-Papoose.

The Toppan Boat Manufacturing Co., who have been located for a number of years at Boston, Mass., expect to move to their new factory this spring, located at Medford, Mass. The new building has a frontage of 500 feet on the Medford River and will give greatly increased shipping facilities.

The Ferro Machine and Foundry Co., of Cleveland, Ohio, have placed orders with the Motor & Mfg. Works, of Geneva, N. Y., for the equipment of the 1910 Ferro output with ejector mufflers made by this company.

The Gray Motor Co., of Detroit, Mich., have recently increased their capital stock from \$100,000 to \$250,000.

The Cape Cod Power Dory Co., of Wareham, Mass., are the builders of the 1909 New England Class B Champion Avia, a photograph of which appeared on page 41 of the January issue of *MOTOR BOATING*. The boat is known as the "Cape Cod Dory."

The Jencick Motor Mfg. Co., of Port Chester, N. Y., have recently installed engines in boats as follows: 8-cyl., 7.5 x 7.5 in., in speed launch for A. B. Quarren, New York; 4-cyl., 7.5 x 7.5 in., in semi-speed launch for W. H. Beebe, New York; 4-cyl., 5 x 6 in., in cruising launch for A. Mestre, New York; 20 4-cyl., 4.5 x 5 in., in 20 semi-speed launches for the Thousand Islands Yacht Club, New

York; 3 6-cyl., 7.5 x 7.5 in., in three fast ferry launches for L. Crane, New York; 4-cyl., 7.5 x 7.5 in., in speed boat for C. L. Hayden, New York; 6-cyl., 5 x 5.5 in., in speed boat for C. A. Clark, Jacksonville, Fla.; 4-cyl., 7.5 x 7.5 in., in cruiser for M. Hoag, Jersey City; 6-cyl., 7.5 x 7.5 in., in cruiser for R. M. Owen, Detroit.

A. L. Galusha, of Dorchester, Mass., is furnishing guaranteed producer gas machines to the public, and they are being used with considerable success in connection with marine engines. The smallest size, of 50 horsepower, uses about one pound of coal per horsepower hour in connection with a suitable marine engine. Larger plants are said to be still more economical. The 64 horsepower engine of the launch Ben Hur was used last year on Massachusetts Bay, with producer gas as a fuel, and did its work on a consumption of 53 pounds of coal per hour.

Tams, Lemoine and Crane, naval architects, on January 1st received Mr. Charles King into partnership in the firm.

The Eisemann Magneto Co., a new company organized in this country, have secured from Lavalette & Co., of New York, the American rights to the Eisemann magneto and will hereafter handle the instrument in this country. The headquarters of the new concern will be on the sixth floor at 225 West 57th Street, New York.

The Holmes Motor Co., of West Mystic, Conn., are planning to exhibit several engines embodying many new features at the coming Motor Boat Show at Madison Square Garden in New York. The two principal types exhibited will be a 6-cylinder, 90-horsepower machine with a dual system of ignition, and a 6-cylinder, 38-horsepower machine similar to the ones now furnished to the U. S. Life Saving Service for their new 36-foot life saving boats. An interesting feature of the larger engine is the location of the flywheel at the after end of the motor, within which is the clutch, mounted on an extension base containing the fore and aft adjustable ball thrust bearing.

The Buffalo Power Boat and Sportsmen's Show will continue this year for nine days instead of the customary six. Nearly all of the available space has been contracted for by exhibitors and it has been found necessary to limit the number of square feet to be assigned to each.

The Connecticut Telephone and Electric Co., of Meriden, Conn., manufacturers of the Connecticut Spark Coil, have filed a certificate of increase of capital stock from \$40,000 to \$250,000.

The United States Government is adding to its fleet of motor boats for Customs and lighthouse service. A call for bids was sent out in December for six motor boats to be used in connection with the government sta-

tion at Charleston, S. C. As soon as the bids are approved and accepted the fleet of power boats will be sent to Castle Pinckney in Charleston harbor.

George B. Carpenter & Co., of 200 South Water St., Chicago, announce that their Marine Supply Catalogue for 1910 is about ready for distribution. The publication contains, in addition to ideas for marine equipment, interesting material in reference to the care and handling of marine engines, etc.

The Royal Engine Company, of Bridgeport, Conn., is a recent corporation with an authorized capital of \$50,000. This concern has a membership in the National Association of Engine and Boat Manufacturers and has for some time past manufactured the Royal engine, under the name of the Royal Equipment Company. The officers of the new corporation are F. A. Law, president and treasurer; and F. L. Prentice, secretary.

The Caille Perfection Motor Co., of Detroit, Mich., have recently opened a stock branch in New York City with Bruns-Kimball & Co., at 126 Liberty St., and a Philadelphia branch in the Philadelphia Bourse. A complete line of marine engines will be carried in both places.

Trade Literature Received.

American Ever Ready Co., 304-322 Hudson St., New York. 48-page illustrated catalogue of "Ever Ready" novelties, including electric flash lights, lamps, electric clocks, batteries, ammeters, etc.

Columbian Brass Foundry, Freeport, L. I. Booklet entitled "Propellers in a Nut Shell," containing valuable propeller information and speed tables, with various designs of the Columbian Speed Propeller.

Wheeler & Schebler, Indianapolis, Ind. Instruction book of the Schebler Carbureter, and booklet describing the W. & S. magneto and coil.

Michigan Wheel Co., Grand Rapids, Mich. Vest pocket catalogue of reverse gears, propeller wheels and marine hardware.

Standard Motor Construction Co., Jersey City, N. J. Useful pocket "Miles per Hour" tables, showing at a glance the miles per hour speed of a boat in either statute or nautical miles.

Foreign Trade Opportunities.

Consul Francis B. Keene, of Geneva, Switzerland, states that in spite of the vast expanse of Lake Geneva, there is no marked taste for motor boating in that section, due perhaps more than anything else, to the fact that the people are indifferent to its pleasures and advantages. The comparatively short season interferes somewhat with the development of the sport, but there is an excellent field for development for those who have enough enthusiasm to overcome the natural indifference of the people.

Motor Boating Patents.

ISSUED DEC. 14, 1909.

- 942,897. Apparatus for Receiving Submarine Sounds. Thomas A. Garrett, Reigate, and William Lucas, Crouch End, England. Filed Aug. 31, 1909.
 942,936. Timing and Ignition Device. William H. Saunders, New London, Conn. Filed Aug. 31, 1908.
 942,967. Starting Device for Internal Combustion Engines. Paschal G. Caspian, Chicago, Ill. Filed Nov. 6, 1908.
 942,977. Carburetor. Johan C. Simonsen, Elkhart, Ind. Filed Dec. 28, 1908.
 942,988. Marine Propeller. David Urch, Portsmouth, N. H. Filed Oct. 10, 1908.
 942,990. Storage-Battery Tank. Theodore A. Willard, Cleveland, Ohio. Filed May 14, 1907.
 943,082. Combustion-Chamber for Gas-Engines. Otto Kraus, New York, N. Y., assignor to Kraus Engine Company, New York, N. Y., a corporation. Filed Dec. 27, 1907.
 943,169. Packing for Stuffing-Boxes. George Strance, Reece S. Bull and William P. Norris, Sistersville, W. Va. Filed Mar. 26, 1908.
 943,197. Carburetor. Harry A. Miller, Los Angeles, Cal., assignor to Miller Carburetor & Manufacturing Company, Los Angeles, Cal., a corporation of California. Filed Jan. 11, 1909.
 943,208. Clutch. Tilmann White, Portland, Ore. Filed Mar. 9, 1909.
 943,233. Exhaust-Muffler. John Boyle, Penbody, Mass. Filed Aug. 28, 1909.
 943,242. Carburetor. David Fergusson and Charles L. Sherry, Buffalo, N. Y., assignors to The George N. Pierce Company, Buffalo, N. Y. Filed June 7, 1907.
 943,324. Sparking Device for Gas or Oil Engines. Waldemar M. Stempel, Urbana, Ill. Filed Mar. 1, 1909.
 943,345. Storage Battery. Louis H. Flanders, Wilkesburg, Pa., assignor, by mesne assignments, to Westinghouse Storage Battery Company, a corporation of New York. Filed Feb. 23, 1906.
 943,408. Internal-Combustion Engine. John O. Helms, Jr., Lowell, Mass. Filed July 16, 1908.
 943,420. Motor for Magneton. Charles S. Kershner, Westphalia, Kans. Filed Mar. 9, 1909.
 943,502. Rotary Gasoline-Engine. Thomas E. Braley, Horton, Kans. Filed June 26, 1909.
 943,597. Double-Acting Internal-Combustion Engine.

- Henry O. Horner and John P. Boyland, New York, N. Y. Filed Jan. 18, 1909.
 943,598. Internal-Combustion Engine. Ingle Hovey, Newcastle, Ind. Filed Nov. 27, 1908.
 943,604. Submarine Boat. Raymond d'Equevilley-Mont-Justin, Kiel, Germany. Filed May 12, 1908.
 943,605. Submarine Boat. Raymond d'Equevilley-Mont-Justin, Kiel, Germany. Filed June 11, 1908.

ISSUED DEC. 21, 1909.

- 944,044. Land and Water Vehicle. John Matthews, Chicago, Ill. Filed July 1, 1909.
 944,048. Carburetor. John R. Price, Newark, N. J. Filed Feb. 26, 1906.
 944,079. Electric Battery. Frank A. Decker, Philadelphia, Pa., assignor to Decker Electrical Manufacturing Company, Wilmington, Del., a corporation of Delaware. Filed June 20, 1907. Renewed Nov. 11, 1909.
 944,180. Trip Mechanism for Corn-Planters. Henry E. Herbrandson, Alcester, S. D. Filed Aug. 12, 1909.
 944,235. Gas-Engine. Charles S. Dutton, Jersey City, N. J., assignor of one-half to H. Herman Westinghouse, New York, N. Y. Filed Oct. 22, 1907.
 943,684. Vaporizer for Internal-Combustion Engines. Philip D. Johnston, Cold Spring, N. Y., assignor to American Oil Engine Company, a corporation of New York. Filed July 1, 1909.
 943,728. Regulator for Internal-Combustion Engines. Maurice J. Wohl and Harry Hertzberg, New York, N. Y., assignors to Abbot A. Low, Horseshoe, N. Y. Filed Mar. 4, 1908.
 943,831. Two-Pole Snap-Switch. Louis Kellner, New York, N. Y., assignor to Metropolitan Switchboard Co., a corporation of New Jersey. Filed Nov. 17, 1908.
 943,839. Boat-Propeller. Franklin P. McElfresh, Shelby County, Iowa. Filed Aug. 16, 1909.
 943,950. Lubricating Device. Reinder F. O. G. van Zoelen, Helder, Netherlands. Filed May 15, 1907.

ISSUED DEC. 28, 1909.

- 944,270. Wrench. Reuben Miller, Jr., Pittsburg, Pa. Filed Feb. 15, 1909.
 944,316. Automatic Starting Device for Explosion-Motors, etc. Eugenio Cantono, Rome, Italy, assignor to The Firm of Società Anonima di Costruzioni Meccaniche Freni a Ricupero Cantono, Genoa, Italy. Filed June 22, 1907.
 944,362. Internal-Combustion Engine. Dallas C. Hathaway, Sheldon, Ill. Filed Oct. 2, 1908.

- 944,452. Carburetor. Alexander D. Elliott, Viola, Ill. Original application filed Dec. 21, 1907. Divided and this application filed Aug. 4, 1908.
 944,534. Crank-Handle. Arthur W. Beaman, Worcester, Mass. Filed Dec. 10, 1908.
 944,646. Exhaust-Muffler. Joseph A. Xardell and Charles A. Xardell, Utica, N. Y. Filed Feb. 18, 1909.
 944,782. Buoyant Bathing-Suit. Patrick J. Griffin, Boston, Mass. Filed May 25, 1907.
 944,811. Internal-Combustion Engine. William E. Nageborn, Detroit, Mich. Filed July 3, 1908.
 944,867. Carburetor. Murray K. Hunter, Vincennes, Ind. Filed Apr. 9, 1909.
 944,975. Heating of Compressed Air for Use in Motors. William H. Sodeau, Newcastle-upon-Tyne, England, assignor to W. G. Armstrong, Whitworth & Company, Limited, Newcastle-upon-Tyne, England. Filed Mar. 25, 1907.

ISSUED JAN. 4, 1910.

- 945,104. Means for Propelling Water-Craft. Charles J. Low, Chelan, Wash. Filed Feb. 24, 1909.
 945,123. Propeller. Fyris C. Gordon, Cleveland, Ohio, assignor to Gordon Propeller Company, Cleveland, Ohio, a corporation of Ohio. Filed Oct. 17, 1908.
 945,167. Carburetor. George M. Holley, Detroit, Mich., assignor to Holley Bros. Co., Detroit, Mich., a corporation of Michigan. Filed May 9, 1906.
 945,237. Screw-Propeller. James Howden, Glasgow, Scotland. Filed Mar. 30, 1908.
 945,245. Gas-Engine Starter. George L. Odenbrett, Milwaukee, Wis. Filed Mar. 23, 1909.
 945,263. Sump-Propelling Device. Carlos C. R. de Carvalho, Lisbon, Portugal. Filed Mar. 2, 1909.
 945,290. Anchor. Heinrich Fuchs, Friedrichsfelde, near Berlin, Germany. Filed May 28, 1909.
 945,311. Boat-Whistle. Valentine Fendrich, Brooklyn, N. Y. Filed May 18, 1908.
 945,523. Exhaust-Silencer. Edwin A. Hall, Danville, and Francis G. Hall, Jr., Newburgh, N. Y. Filed June 16, 1909.
 945,533. Screw-Propeller. Peter Kovács, New York, N. Y., assignor of one-half to Max Meyerson, New York, N. Y. Filed Oct. 21, 1909.
 945,594. Storage Battery. Paul M. Marko, New York, N. Y. Filed June 10, 1909.
 945,663. Propeller. Simon Yeager, Crafton, Pa. Filed May 7, 1909.

Federal Motor Boats.

(Continued from page 35.)

catch them "with the goods." The boat is 45 feet long, 12 feet beam and 4 to 5 feet draft. She has a cabin in which the equipment is stored, with a toilet room and wash bowl in the forward part. The engine is a four-cylinder, 28 h.p., built by the Clifton Motor Works, of Cincinnati, Ohio, with generator and storage battery ignition (jump spark) with sets of primary cells in reserve. An air pump, driven by the engine, supplies air for the whistle, and the capacity of the gasoline tank is 104 gallons.

The U. S. Customs No. 1 is an old boat, 40 feet long, 6 tons gross, stationed at American Docks, Tompkinsville, Staten Island. She was recently equipped with a new 10-h.p. Twentieth Century engine. She is used by Customs officers, assigned to the large Staten Island District, including Bayonne, Bergen Point, and Constable Hook. The duties of these officers are to watch the loading and unloading of vessels, and to supervise the loading of bonded goods to trains, including the sealing of the cars. The boat is very useful in covering scattered work in her territory, enabling it to be handled by a comparatively small number of men.

The Merrimac and Its Motor Boats.

(Continued from page 6.)

string is always out to visiting boatmen. Organized in 1885, the American Yacht Club of Newburyport has a long and honorable record, its flag being known in nearly every harbor along the north Atlantic coast. Made up originally of owners of yachts and sailing vessels, it has developed along with most clubs of its nature until now it is a full-fledged motor organization. It has a handsome club house and float, second to none on the coast, and the largest membership of any like club in the vicinity. Like the North End Club, it believes in the open door and everybody is welcome. Its club house and equipment are second to none, surpassing any of the like clubs in this section, and its accommodations are frequently remarked upon by visiting boatmen as the best in the state.

Talks With Our Naval Architects.

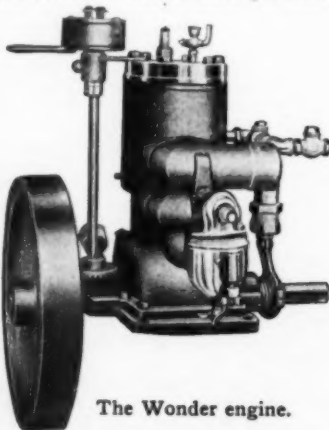
(Continued from page 17.)

him home any cups.

"Long distance cruising races are however much to be commended, as they are building up a class of fast, comfortable, sea-going cruisers whose uses are not confined by any means to racing. I am glad to note that diligent efforts are being made, and with considerable success, to revise the rules with a view toward increasing interest in power boat racing. The coming racer, in my opinion, is the hydroplane, and I would not be surprised to see speeds developed in the near future which would have been scarcely dreamed of a few years ago."

The Wonder Engine.

The engine shown in the accompanying cut is one of the latest models from the plant of the Wonder Manufacturing Company, of Syracuse, N. Y. These motors are of the two-cycle, three-port type and are built as light as is possible without the sacrifice of any strength. All are of the jump spark type and are equipped with a vaporizer of a special design, which is constructed so as to give a maximum speed with a minimum consumption of fuel. A special outfit placed upon the market by this company consists of a double cylinder engine complete, which weighs only 128 pounds and will drive an ordinary 20-foot boat at a speed of ten or eleven miles per hour.



The Wonder engine.

Regarding Waterways Improvement.

(Continued from page 20.)

of the Federal authorities would mean much to the motor boating fraternity on the Delaware and Chesapeake Bays. No matter how small the boat that enters the cut at present, it must not exceed a speed of $4\frac{1}{2}$ miles over the 13-mile stretch. Most power boats receive little consideration from the present canal authorities because of the heavy commercial trade that takes up their time.

Government control of this waterway would mean a new era to the motor boatmen. With wooden or concrete revetments it would make little difference how much of a wash their propellers make and a 16-foot depth would allow them to tune up all they pleased.

Steering Equipment for Open Boats.

(Continued from page 39.)

with the bolt ropes, sheets, etc., of soft cotton rope. These sails will stow in small compass and can easily be put away in a locker.

The mast of a sprit sail is short and will stow in the same length as the oars. For the sprit two poles not longer than good sized boat hooks can be used, which should be made of light stiff wood; bamboo poles are excellent for this purpose. The mast is also made of light wood and should be stepped through the forward cross thwart.

As most launches have a rather long forward deck with gasoline tank underneath it is necessary to bring the mast aft to clear this deck. In doing this the sail is brought to a position which will cause the boat to luff into the wind and steer badly, hence the little jib which will keep her head off and enable the boat to handle nicely.

No hard and set rule can be given as to dimensions as each boat will differ somewhat from its neighbor. With a little experimenting as to the proper size of the sails and some ingenuity by the boat owner regarding fastenings, such as snaphooks, rings, etc., a rig can be made which will take up little room and be very handy to get home with in case of a breakdown.

JAMES S. PENNEFATHER, New York.

What Is to Be Seen at the Boston Show.

(Continued from page 16.)

Charles J. Jager Company, Boston, Mass. Shown herewith is a photograph of one of the latest models of the 6-cylinder engine exhibited by this company. This engine is of the heavy duty type, having a bore of 6 3/4 inches and a stroke of 8 inches and is rated at 50 h.p. at 350 r.p.m. This is known as type L. Other models shown by this company will be a 6-cylinder heavy duty type rated at 125 h.p. at 400 r.p.m., a 4-cylinder, 25 h.p., direct connected electric lighting equipment, and a single cylinder, 5 h.p. outfit of the same type; and a 6-cylinder, 75 h.p., light weight type of engine rated at 900 r.p.m.

A. S. Morss Company, Boston, Mass. In the exhibit of this company is shown a complete line of hermetic battery cases, Welight lighting systems, the auto boat bailer and a general line of motor boat fittings. Attention will be attracted at the exhibit of this company by a light house with a revolving light flashing the number of their street. Inside of the light house is a large ship's bell which will strike the time as on shipboard. The exhibit will also include the Hitchcock Automatic Bilge Bailer which was described on page 49 in the December issue.

K.-W. Ignition Company, Cleveland, Ohio. In addition to the new model M magneto shown in the accompanying cut this company is exhibiting their standard models A, B, C, F, and HT, and the well-known K.-W. spark coil. In the construction of this coil great care is taken to eliminate all traces of moisture generally found in the silk insulation of fine copper wire and in the upper insulation between layers of wire in most magnetos. Every particle of moisture is removed in the construction by placing the coil on end in a large steel steam jacketed vat which is sealed absolutely air-tight. The vat is heated to a high degree and the coil is kept at this temperature for 6 hours. At the end of this time a vacuum is created in the vat and every particle of moisture extracted, leaving the windings absolutely dry.

Motsinger Device Manufacturing Co., Pendleton, Ind. The Auto-Sparker exhibited by this company is a direct current dynamo, fitted with a positive mechanical governor which is calculated to regulate the speed and output of current regardless of the speed of the engine on which it is used. This is exhibited in connection with a charging switchboard and a 6-60 storage battery to illustrate a charging equipment for motor boats. This company is also exhibiting a new D. C. magneto for make and break spark ignition in connection with a primary coil. This magneto will operate when running in either direction and the average engine can be started with this device as easily as with batteries. Another feature of the exhibit will be a line of specially wound jump spark coils to be operated direct from the auto sparker in connection with the switchboard for charging purposes.

Borne Scrymer Company, 80 South Street, New York City, N. Y. This concern are manufacturers of various kinds of lubricating oils and have at their exhibit a complete line of Colonial Motor Oils and Silax grease. Colonial Motor Oils have been used with great success on motor boats and it is found that the carbonization is very slight when the oil is used intelligently. The company recommend their medium grade for boat use and for special conditions they are able to furnish three other grades, namely, the Heavy, Fluid and Pale. A cup grease which they have placed on the market, known as the Silax grease, is calculated to maintain a uniform consistency without regard to temperature changes. This oil is made in two grades, regular and hard.

Stackpole Battery Co., St. Marys, Penn.,

A new feature exhibited by this company is a waterproof jacket for dry cells which is expected to greatly increase the life of the battery. Ordinary dry cell jackets, upon becoming wet, are likely to be short-circuited and their life thereby greatly shortened. It is thought the new waterproof jacket will increase the usefulness of the ordinary dry cell at least 20 per cent. Aside from this the exhibit of this company will consist of Autocrat and Wizard dry cells for ignition work, both of which have been on the market for over three years.

Boston Engineering Co., Boston, Mass. This company has an exhibit consisting of the Ferro two-cycle marine engine of from 3 to 25 H. P., and from 1 to 3 cylinders, the Niagara four-cycle marine engine of from 7 1/2 H. P., two-cylinder, to 15 H. P., four-cylinder, and 75-100 H. P., six-cylinder; and the Witte stationary engine of 6 H. P. They will also have on exhibition an 18-foot boat with a 4 foot 10-inch beam, equipped with a 3 H. P. Ferro engine, called the Boston Auto Boat Special. This is an attractive little runabout and should prove very popular for a low-priced outfit.

National Carbon Company, Cleveland, Ohio. A full line of Columbia multiple batteries is shown by this company. These batteries are water-proof and appear to a large extent



Hermetic battery case as exhibited by A. S. Morss & Co.

to be damage-proof as well. They contain no acid, cannot leak, require no charging and are as simple as a battery can be made. An exhibit of Columbia Batteries and Columbia ignitor dry cells, as well as a special machine to illustrate gas engine ignition, is also shown. This latter model represents four-cylinder motors so arranged that it can easily be seen exactly what takes place in the ignition system of gasoline engine.

Valentine & Company, New York and Chicago. This company manufactures a grade of varnish called Valspar which is guaranteed not to turn white under any conditions. As a proof of this guarantee they have on exhibition two interesting models of Submarine boats, one showing a completed test of the varnish and the other showing the same test under way. Another portion of the exhibit shows a set of wooden panels illustrating the various tests of Valspar and the different methods of finishing wood with this varnish.

The Termaat and Monahan Company, of Oshkosh, Wis., manufacture motors in eighteen sizes and have a large variety of their product on exhibition. These engines are known as the "T & M" motor and are made in both single and multiple cylinder models in sizes ranging from 2 to 120 horsepower. A handsomely illustrated catalogue containing a valuable treatise on the care of a marine engine is being distributed.

Hercules Electric Company, Indianapolis, Ind. This company will exhibit in connection

with the Stuart-Howland Company and will show a line of the Hercules ignition magnetos for stationary, automobile and marine gasoline engines, and a complete line of ignition accessories for motor boats. The principal feature of their exhibit will be a small friction drive magneto having an automatic governor to regulate the amount of current delivery. While this magneto is designed for ignition purposes it will carry a considerable overload and has proved very serviceable in every respect.

The American Marine Equipment Company, 27 Haverhill Street, Boston, Mass. This company, manufacturers of Dazzleine and Cinch metal polish, will have on exhibition a 26-foot Elco launch equipped with an American and British engine, a complete line of American and British motors, and the Watkins, the Frisbie and the Reeves-Graef make of engines.

Byrne Kingston & Company, Kokomo, Ind. The exhibit of this company consists of various types of their floating ball carburetor in different sizes from 3/4 of an inch up to 4 inches. These carburetors have the reputation of being noiseless in their action and are made in special types for marine and stationary motors. They are entirely automatic in their action, and since they contain no springs, are less likely to get out of adjustment. A transparent model of the carburetor, showing its construction very thoroughly.

The S. M. Jones Company, of 602 Segur Ave., Detroit, Mich., are showing a complete line of the "Ralaco" engine in both single and multiple cylinder designs. These engines are primarily for heavy duty, where reliable service is necessary, and are especially adapted for cruisers of the larger type. The "Ralaco" engines are of the make-and-break ignition and are equipped with a special type of carburetor which makes them economical in the use of fuel.

Dean Mfg. Company, Newport, Ky. This company has an exhibit of fourteen different sizes of Fox motors from 3 1/2 to 72 H. P. A new feature of the exhibit of this company is called the Fox Fourth Port Accelerator, which consist of a fourth port which may be brought into action when the engine has attained high speed. It is stated that this accelerator was of considerably moment in the success of Br'er Fox second in her endurance run of 1,554 miles from Cincinnati to New Orleans. The log of this run proves most interesting reading and is being distributed by the company.

Frisbie-Heft Motor Company, Middletown, Conn. The exhibit of this company consists of a number of 4-cycle marine engines of medium weight from 3 to 80 h.p. and from 1 to 8 cylinders. These motors are very dependable and having few working parts are simple and at the same time economical. A special light motor is made for use on other boats where the heavier designs are more impractical. A number of fast boats have been equipped with these engines and the company is distributing descriptions of the boats to interested parties.

L. O. Koven and Bro., 50 Cliff St., New York City. This company manufactures galvanized tanks of every shape and for every purpose. Gasoline, compressed air, oil and water tanks are their specialty and a number of these will be on exhibition.

Herz and Company, 295 Lafayette St., New York City. The Herz Company will exhibit a full line of their well-known ignition accessories, including timers, distributors, plugs, magnetos, etc. The Herz magneto is a light, compact little instrument, requiring no other starting device and no timer or coil.

Racing Classification Recommendations

The Report of the Preliminary Committee Which was Appointed Last December
To Formulate Rules for Restricted Classes for Motor Boat Racing.

AT a conference recently held in New York City of representatives of the various motor boat associations a preliminary committee of five was appointed to formulate rules and classifications for restricted power boat classes of the National Power Boat Commission.

At a meeting held in Detroit, Mich., on January 15, the following classifications were submitted and have been sent to the various clubs and associations for criticism. We print the committee's report:

"Your committee appointed to devise rules for restricted classes of power boat racing respectfully submits for your consideration as follows:

"Classes to be divided according to over all length into sizes of 21 feet, 26 feet, 31 feet, 36 feet and 41 feet. Classes to have a minimum weight and a maximum piston displacement, but in each class, if a smaller piston displacement than the maximum is used, a deduction will be made from the required weight. Boats to be weighed with all propelling mechanism aboard, but without fuel, oil or crew. Piston displacements fixed for each class are for 4-cycle motors.

"Class A.—Boats not exceeding 21 feet over all length, but excluding rudder, if hung on the transom. Maximum piston displacement for a 4-cycle motor, 250 cu. in. Minimum weight for this piston displacement, under weighing conditions as outlined above, 2,000 lbs. The minimum piston displacement allowed shall be 160 cu. in. and the minimum weight for this piston displacement 1,250 lbs.

"For each 12½ cu. in. of piston displacement below the allowed amount, the weight may be decreased by 100 lbs.

"Class B.—Boats not exceeding 26 feet over

all length, measured same as Class A. Maximum piston displacement for a 4-cycle motor to be 275 cu. in. Minimum weight allowed under this displacement, under weighing conditions as outlined above, to be 2,750 lbs. Minimum piston displacement to be 251 cu. in. and the minimum weight for this piston displacement 1,800 lbs.

"For each 13.8 cu. in. of piston displacement below the allowed amount, the weight may be decreased by 100 lbs.

"Class C.—Boats not exceeding 31 feet over all length, measured same as Class A. Maximum piston displacement for a 4-cycle motor to be 500 cu. in. Minimum weight for this piston displacement, under weighing conditions outlined above, to be 3,600 lbs. Minimum piston displacement to be 376 cu. in., and the minimum weight for this piston displacement 2,550 lbs.

"For each 14.7 of piston displacement below the allowed amount, the weight may be decreased by 100 lbs.

"Class D.—Boats not exceeding 36 feet over all length, measured same as Class A. Maximum piston displacement for a 4-cycle motor to be 700 cu. in. Minimum weight for this piston displacement, under weighing conditions outlined above, to be 4,500 lbs. Minimum piston displacement to be 531 cu. in., and the minimum weight for this piston displacement 3,319 lbs.

"For each 15.5 cu. in. of piston displacement below the allowed amount, the weight may be decreased by 100 lbs.

"Class E.—Boats not exceeding 41 feet over all length, measured same as Class A. Maximum piston displacement for a 4-cycle motor to be 900 cu. in. Minimum weight allowed for this piston displacement, under

measuring conditions outlined above, to be 5,400 lbs. Minimum piston displacement to be 701 cu. in. and the minimum weight for this piston displacement 4,205 lbs.

"For each 16.7 cu. in. of piston displacement below the allowed amount, the weight may be decreased by 100 lbs.

"In a boat equipped with a 2-cycle motor of the present 2-port or 3-port type, not in combination, the maximum piston displacement shall not exceed 85 per cent of that allowed for a 4-cycle motor.

"In a boat equipped with a 2-cycle motor using the 2-port or 3-port systems in combination, the maximum piston displacement shall not exceed 75 per cent of that allowed for a 4-cycle motor.

"In a boat equipped with an engine of either the 2-cycle or 4-cycle type employing a scavenging device or a detached air compressor, or an auxiliary, non-exploding cylinder, the maximum piston displacement shall not exceed 90 per cent of that allowed under the preceding sections.

"While this rule may not cover boats already in commission to the satisfaction of some owners, it is the intent of the committee to submit a rule for restricted classes which covers a good, healthy, serviceable runabout, seaworthy and of strong construction, and at the same time providing for the owners of such boats classes in which they may race without handicap."

Respectfully submitted,

Committee on Restricted Classes,
C. A. Crique
Henry R. Sutphen
F. R. Still
Morris M. Whitaker
Robert E. Power

The Intra-Coastal Canal.

By A. B. Foster, Commodore Halifax River Yacht Club.

THE December issue of *MOTOR BOATING* contains an interesting article by Chester L. Wynn, on the proposed "Intra Coastal Canal," which I desire to both commend and criticize. Mr. Wynn very ably shows some of the advantages that would result from such a waterway, but does not, in my opinion, make them strong enough, from a military and naval point of view, while the commercial advantages would alone pay the cost, which would be much less than Mr. Wynn's estimate. Less from the fact that instead of 40 miles break from Jacksonville to Mosquito Lagoon there is now a 60-foot canal and natural waterway, with a minimum depth at high tide of 5 feet from St. Augustine to Miami, that will be completed the coming summer (probably by April 1st) from St. Augustine to the St. Johns River at Pablo Creek, which will make an inside waterway for light draft boats (from 3 to 4 feet draft) from Jacksonville to the Florida Keys and Key West. I have made the trip from St. Augustine to the Keys a number of times with a boat drawing over 3 feet. Mr. Wynn says: the present break must needs at present lead on the outside from the St. Johns to Holly Hill, at the head of Mosquito Lagoon, when, in fact, Holly Hill is on the Halifax River, 40 miles north of the Lagoon, this distance being covered by the Halifax and Hillsboro (Tidal) Rivers. He also terms the East Coasts Canal System the Florida East Coast Railway Canal, when, in fact, the work has been done by the Florida Coast Line Canal and Transportation Co., under a charter from the State of Florida, and they have been working under this grant for more than twenty

years, and have constructed along the east coast not less than one hundred miles of canal, connecting the natural waterways, so that the work required to make a 12-foot waterway the entire length of the Florida east coast would be the enlarging of the present system a part of the distance, as the channels of the Indian River, Hobe Sound, Lake Worth and Biscayne Bay would require comparatively little improvement and the Halifax and Hillsboro Rivers could be made navigable for larger craft by the improvement of Mosquito Inlet and a small amount of dredging.

I should be glad to see another article from

Mr. Wynn on this important subject, and the object of this one is to put him right on the actual conditions along the Florida East Coast, where the present waterway could be made of great commercial value and afford untold pleasure to the thousands of yachtsmen who frequent these waters if a small amount of the waterways appropriations could be diverted to that part under direct control of the Government, like the enlarging of Mosquito Inlet, the cutting of a short channel around Gilberts Bar from Manatee Pocket to Pecks Lake, which at the present time are the most difficult points between St. Augustine and Miami.



Broadwater, a 50-foot gasoline tug, built by the Nilson Yachtbuilding Company, of Baltimore, for the Pennsylvania Railroad Company

Index to Advertisers.

Aluminum Foundry Co.....	60	Gas Engine and P. Co. and Chas Seabury & Co., Cons.....	75	Orswell Igniter Co.....	62
Atlantic Co.....	52	Geiszler Bros.....	71	Packard Electric Co.....	70
Autoforce Ventilating System.....	60	Gielow, Henry J.....	52-55	Palmer Bros.....	93
Autogenous Welding Equipment Co.....	62	Gray Motor Co.....	78	Pfanstiehl Electrical Labty.....	62
Automatic Bilge Boiler Co.....	62	Gray-Hawley Mfg. Co.....	62	Pierce-Budd & Co.....	73
Bath Marine Construction Co.....	62	Gray & Prior Machine Co.....	68	Pioneer Boat & Pattern Co.....	66
Belle Isle Motor.....	61	Greenslade Oil Co.....	60		
Blake Electrical Co.....	62			Remington Oil Engine Co.....	67
Boucher Mfg. Co., H. E.....	60	Haddock, R. M.....	52	Richardson Engineering Co.....	62
Borden Yacht Agency.....	52	Havoline Oil Co.....	62	Roberts Motor Co.....	75
Bowes & Watts.....	52	Heinze Electric Co.....	63	Roper & Co., C. F.....	4th Cover
Bridgeport Motor Co.....	61	Hill, R. S.....	62		
Brown-Talbot Co.....	60	Holmes Motor Co.....	62	Sagamore Engine Co.....	62
Bruns, Kimball & Co.....	52	Hopkins & Co., John C.....	61	Samson Cordage Works.....	70
Bryant & Berry Co.....	60	Hudson Yacht & Boat Co.....	52	Scripps Motor Co.....	66
Buffalo Gasoline Motor Co.....	80			Seaman-Stanley, M.....	53
		Ideal Switch Co.....	60	Siegel Cooper Co.....	65
Caille Perfection Motor Co.....	71			Smith & Baldrige Co.....	68
Camden Anchor-Rockland Machine Co..	60	Janney, Steinmetz & Co.....	52	Snow & Petrelli Mfg. Co.....	63
Cape Cod Power Dory Co.....	62	Jones, Frank Bowne.....	57	Springfield Motor Co.....	52
Carpenter & Co., Geo. B.....	60	Jones Co., S. M.....	73	Standard Motor Cons. Co.....	2d Cover
Cartridge Coil Co.....	60			Stanley Co.....	60
Cary, Smith & Ferris.....	52	Kaufmann, Chas.....	71	Strelinger Marine Engine Co.....	61
Cavio Underwater Exhaust Co.....	62	Kenyon Co., R. L.....	3rd Cover	Sterling Engine Co.....	3rd Cover
Coates Clipper Mfg. Co.....	60	Koven & Bros., L. O.....	62		
Columbian Brass Foundry.....	65	K. W. Ignition Co.....	77	Taunton Motor Boat Co.....	62
Cooley Mfg. Co.....	52			Termaat & Monahan.....	60
Cox & Stevens.....	52-56	Lavalette & Co.....	52	Thomas & Co., W. E.....	66
Craig, James.....	52	Lindley & Co., W. H.....	62	Thompson Co., J. H.....	60
Curtiss Co., J. H.....	60	Loveland Mfg. Co.....	65	Thrall Motor Co.....	76
Cutter, Geo. A.....	60			Toppan Boat Mfg. Co.....	52
		Mathews Boat Co.....	68	Torrey Roller Bushing Works.....	72
Dayton Electrical Mfg. Co.....	66	Mathisen Boat Co.....	68	Trebert, H. L. F.....	63
Dean Mfg. Co.....	74	McIntosh Yacht Agency.....	59	Trimount Rotary Power Co.....	65
Defoe Boat & Motor Works.....	52	Mianus Motor Works.....	61	Truscott Boat Mfg. Co.....	71
Dodge Engine Co.....	67	Michigan Wheel Co.....	61		
Doman Co., H. C.....	62	Milton Boat Works.....	62	Upson-Walton Co.....	70
Dow Mfg. Co.....	69	Monitor Boat & Engine Co.....	62		
Dunn, Walter E.....	62	Montgomery, Jr., Richard M.....	62	Van Wagner Mfg. Co., E. B.....	52
		Morss Co., A. S.....	61	Vim Motor Company.....	79
Edgar Mfg. Co.....	60	Motor & Mfg. Works Co.....	60		
Electric Launch Co., The.....	2d Cover	Mower, Chas. D.....	52	Waterman Marine Motor Co.....	65
Emerson Engine Co.....	74	Mullins Co., W. H.....	72	Watres Mfg. Co.....	62
Essex Engine Co.....	62			Welin, David, Lane & De Grost Co.....	60
Evans Stamping and Plating Co.....	60	National Motor Boat & Engine Show....	70	Wells, Theodore D.....	52
		National Steel Products Company.....	66	White & Co., E. M.....	63
Factory Sales Corp.....	80	Naval Architects & Yacht Brokers.....	52-59	Whittaker, Morris.....	52
Ferdinand & Co., L. W.....	67	Nilson Yacht Bldg. Co.....	52	Whittelsey & Whittelsey.....	52-58
Ferro Machine & Foundry Co.....	63	Nock, Frederic S.....	52	Wilkinson Co., Wm. H.....	60
Friskie-Heft Motor Co.....	69			Wilmarth & Morman Co.....	62
Frontier Engineering Co.....	69	Oakes & Dow Co.....	65	Wolverine Motor Works.....	63
Gardner, Wm.....	54			Wonder Mfg. Co.....	61

"You Can Lead a Horse to Water But You Can't Make Him Drink"

After trying unsuccessfully for several months, a Representative of MoToR Boating finally got past the outer door into the sanctum of a well known boat engine Manufacturer.

The Manufacturer was in a mood that would have made Mephistopheles envious. The Representative was in a state of "I-must-talk-or-I-will-explode" tensity.

The Manufacturer's tongue sizzled when he turned on the MoToR Boating man. He already knew all about MoToR Boating; he had thoroughly investigated it a year ago.

He was not going to be bothered with a matter about which he had already made up his mind. He was too busy to be can-opened.

Now, if MoToR Boating had (and he smiled triumphantly, crushingly), say, about twelve or fifteen thousand circulation, it

would pay him to advertise in it, but—

He got no further. The Representative opened his oral safety valve whence pent up facts issued in a stream. He took out a contract and handed it to the Manufacturer.

"I'm glad you've decided to advertise in MoToR Boating," he said.

The Manufacturer gasped.

"You see," went on the MoToR Boating man, "MoToR Boating has a guaranteed circulation of 16,000. Actually much more than that—the February issue's print is, for example, 20,000."

Another gasp, but the stream flowed on.

"You know MoToR, the foremost automobile publication. Both MoToR and MoToR Boating are published by the same organization now. MoToR Boating is rapidly be-

coming to motor-boatdom what MoToR is to automobilism.

"Besides, MoToR Boating is an advertiser itself. Newspapers reaching from ocean to ocean and general magazines, aggregating millions of readers, are carrying the advertising of MoToR Boating.

"MoToR Boating, in other words, is doing all that money and organization can do to gather to itself the readers of other publications who are sufficiently interested in motor boats to read MoToR Boating."

There was a rapid scratching of a pen.

"Of course," concluded the Representative, "you can lead a horse to water but you can't make him drink." He was smiling.

"Yes, you can," replied the Manufacturer, returning the contract—signed.

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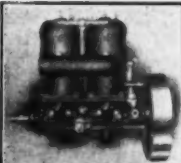
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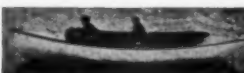


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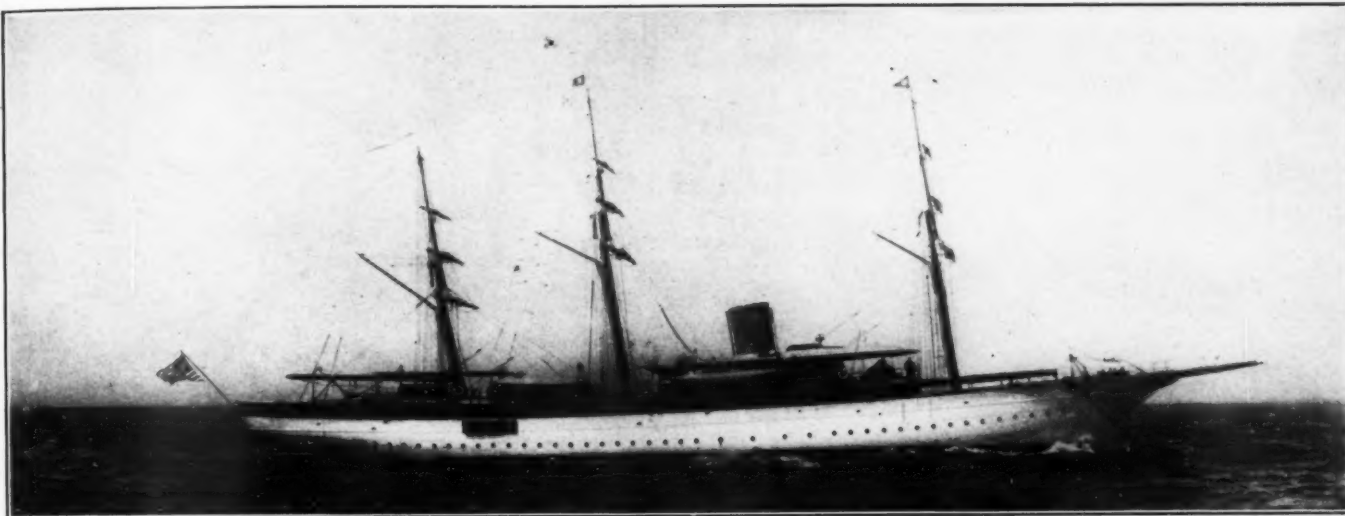
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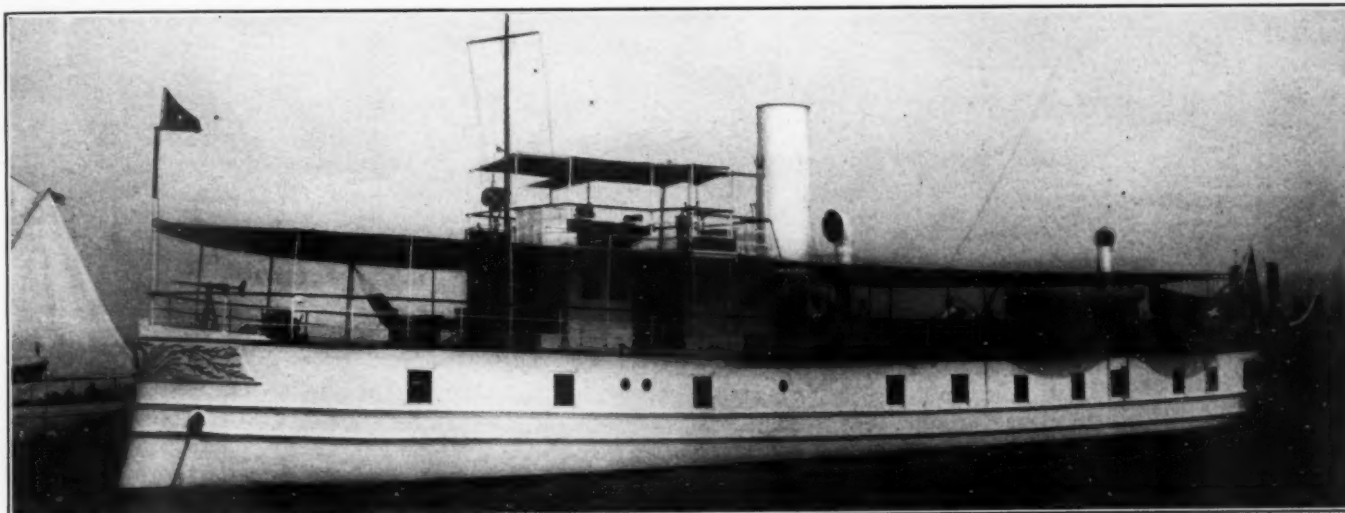
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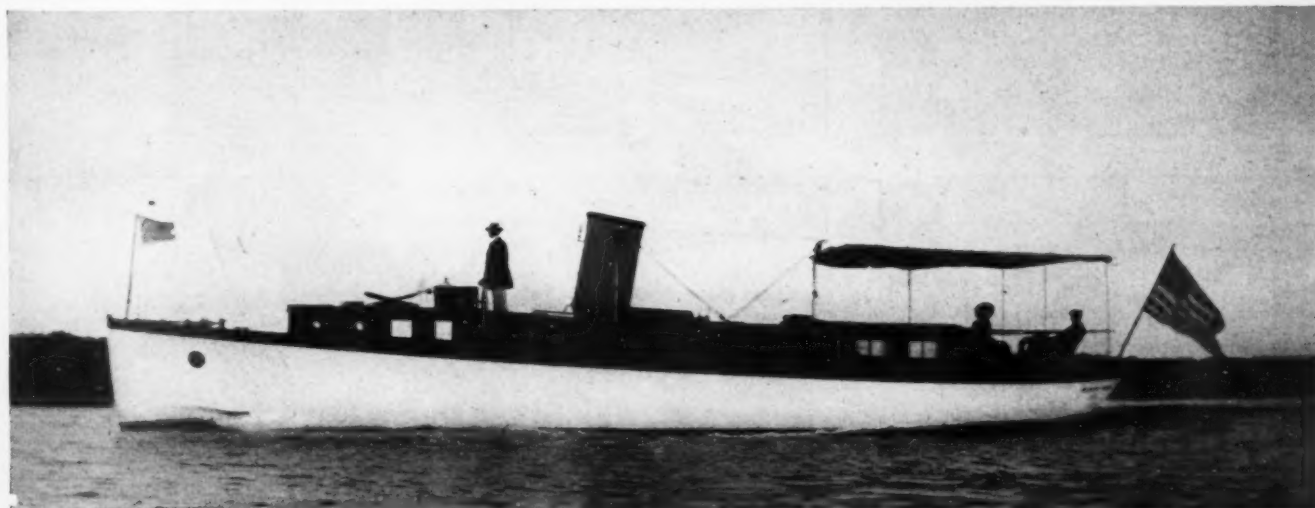
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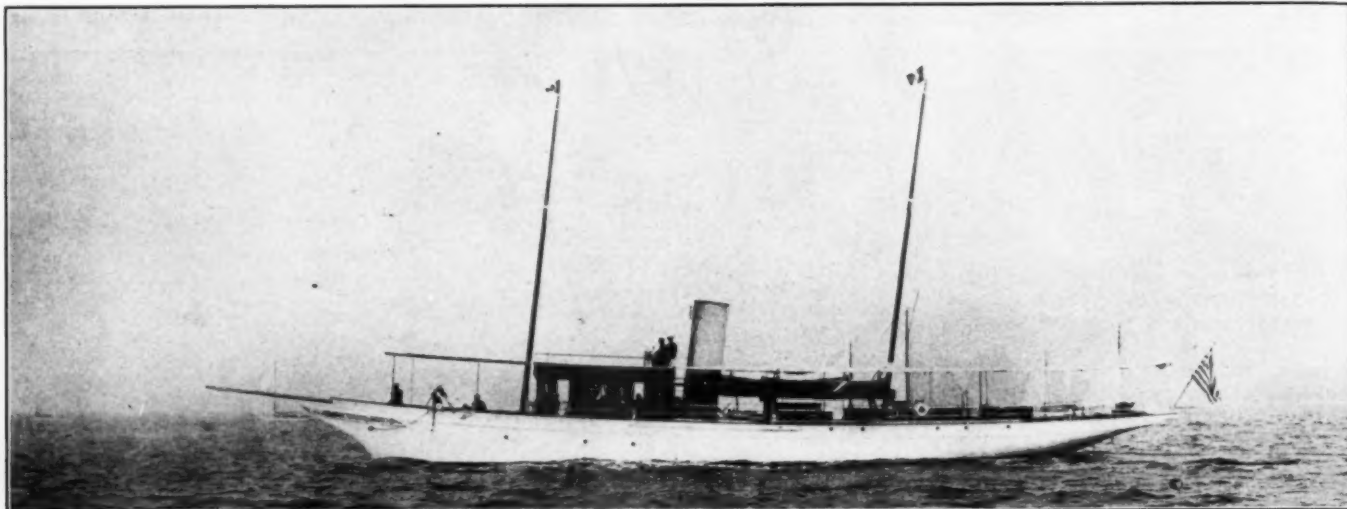
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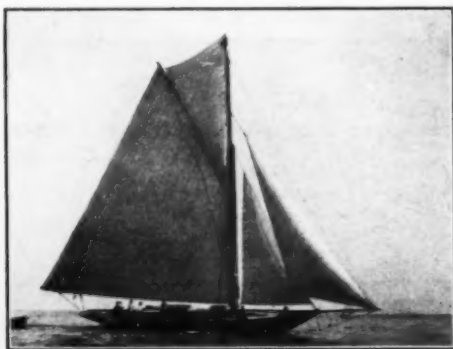
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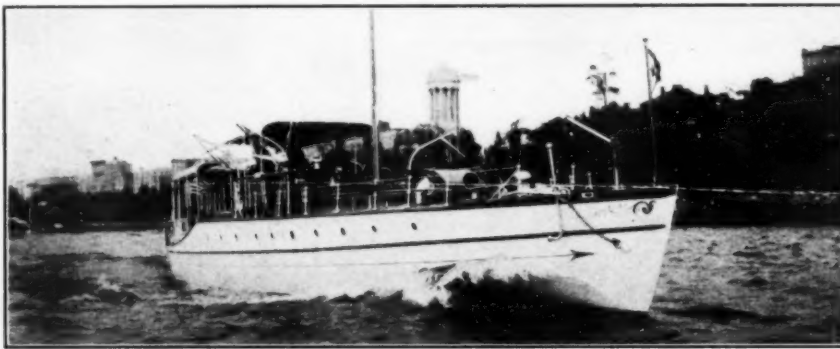
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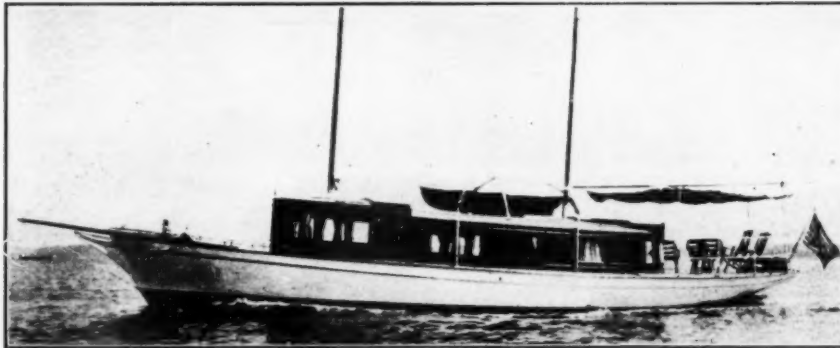
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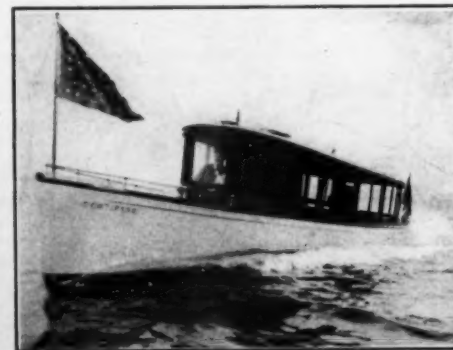
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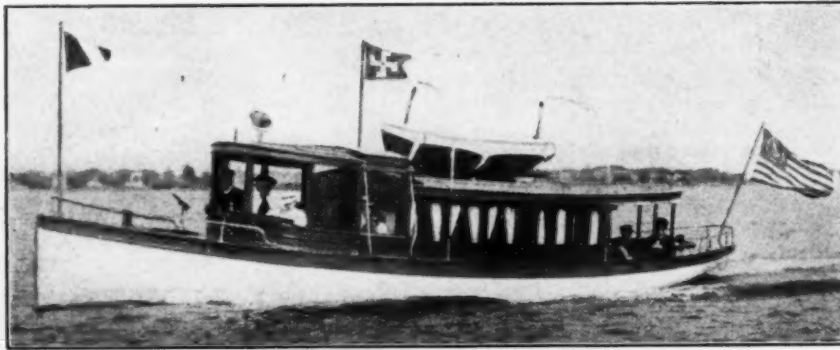
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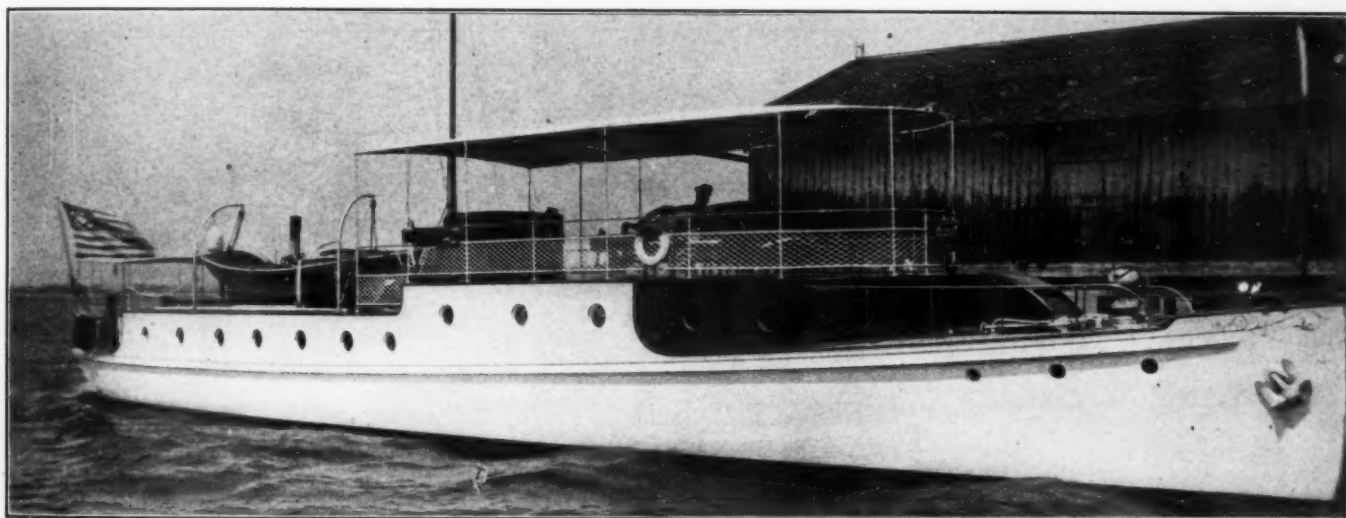
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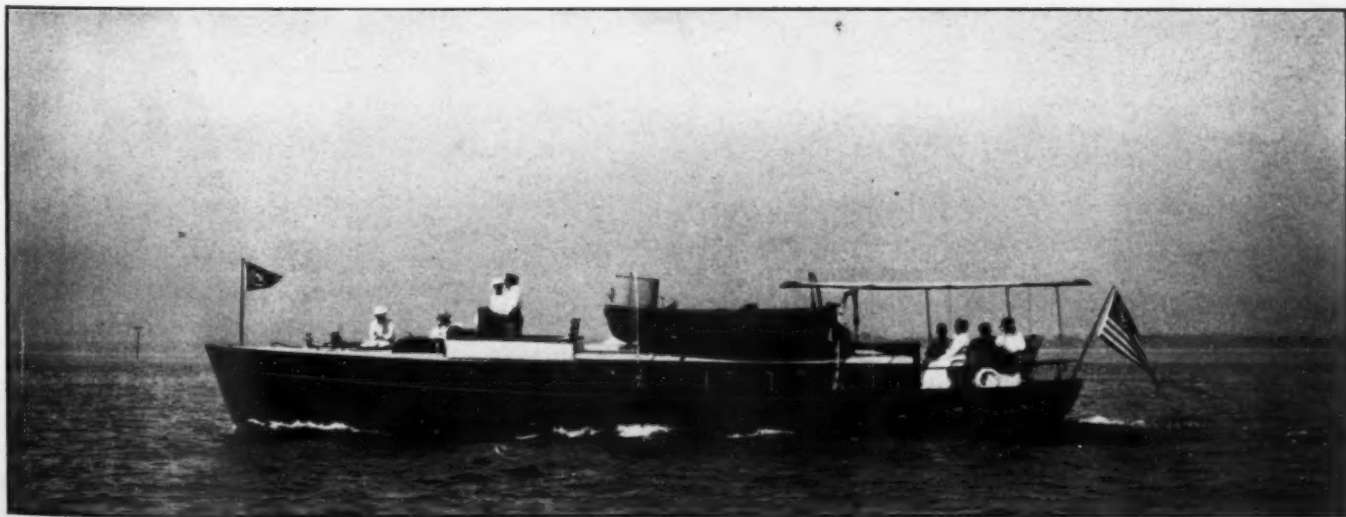
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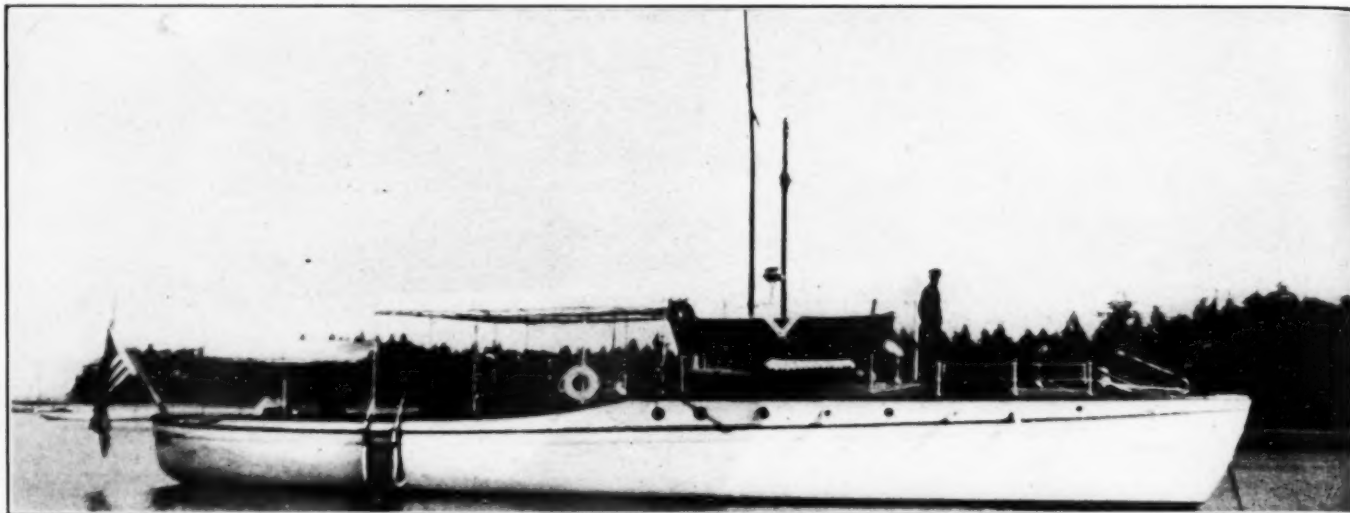
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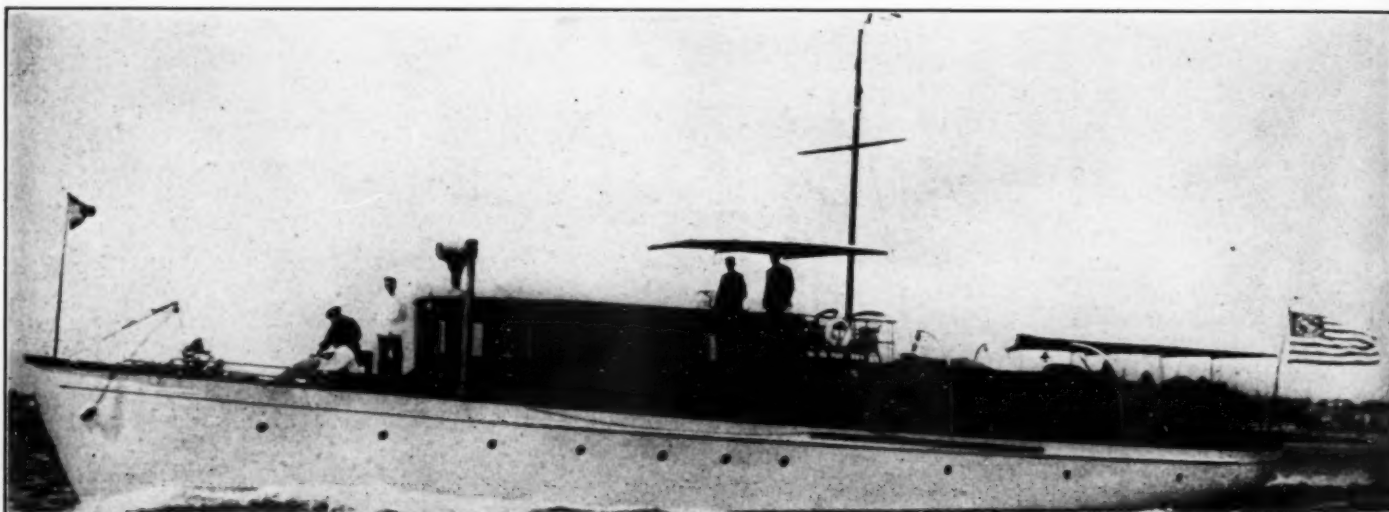
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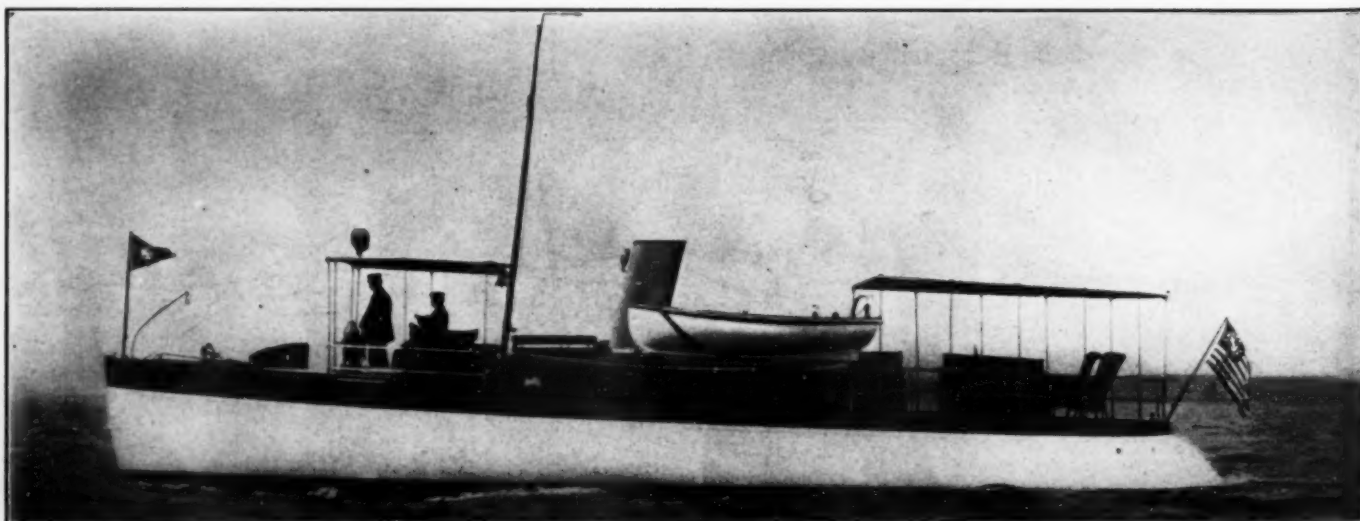
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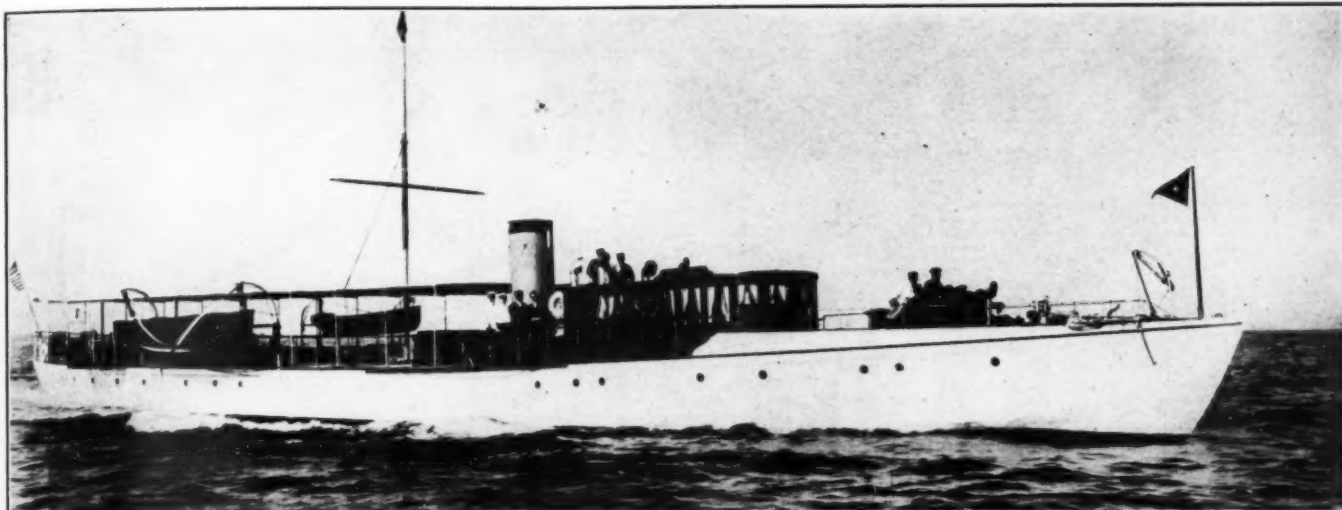
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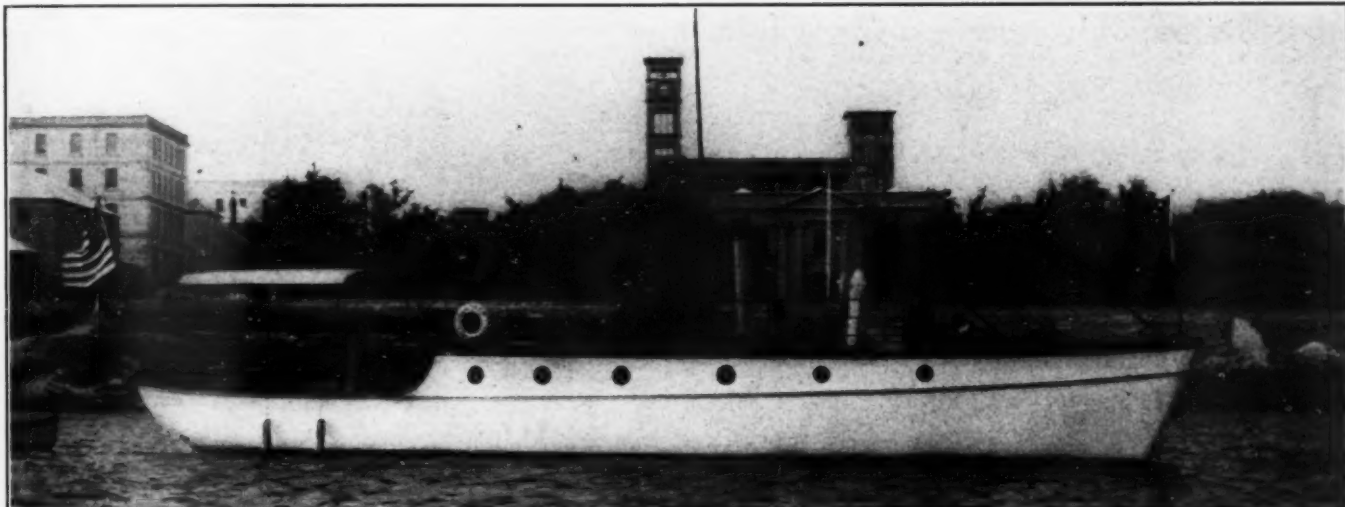
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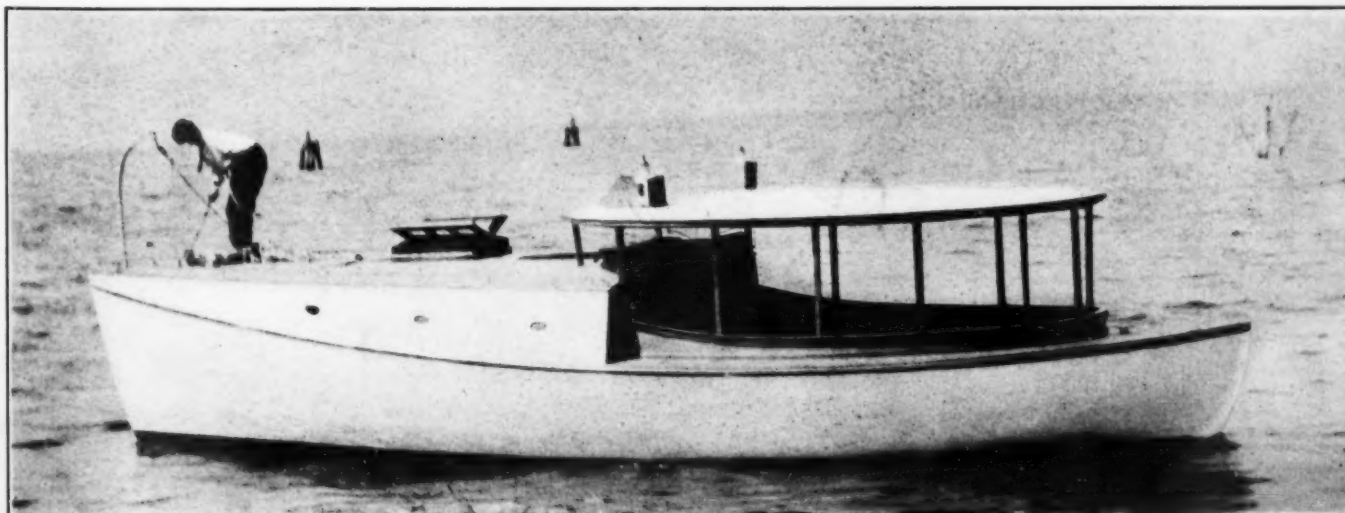
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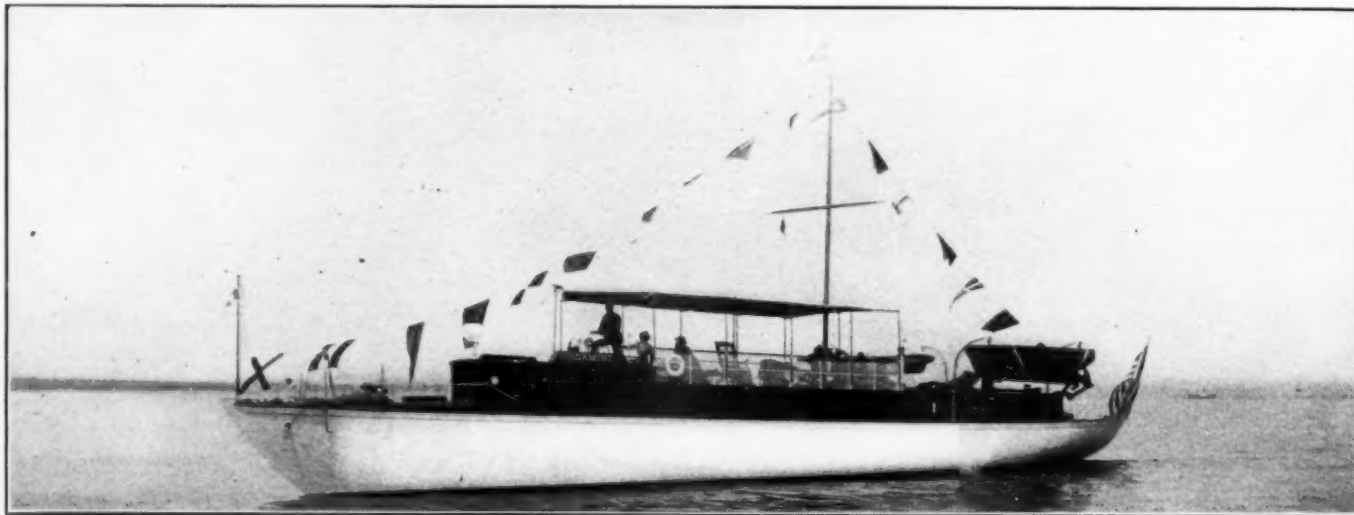
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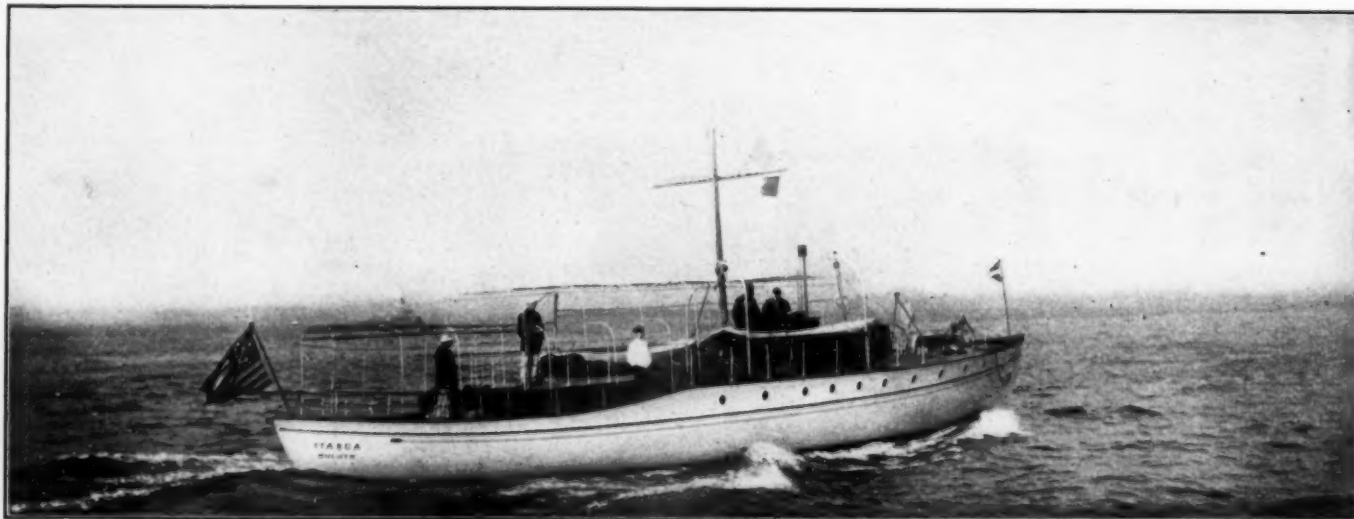
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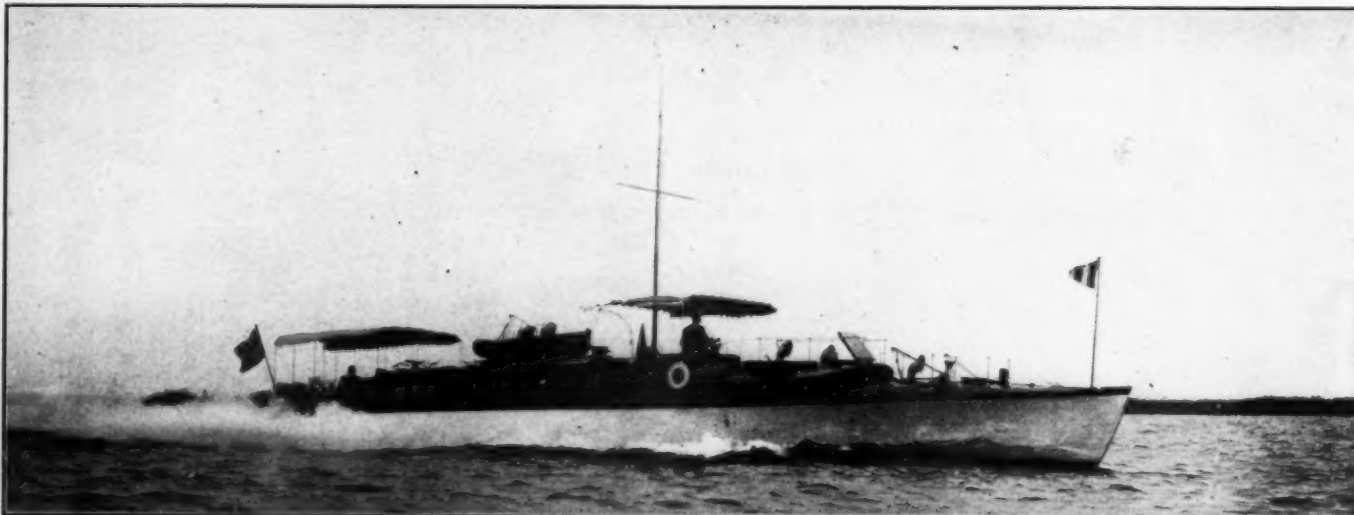
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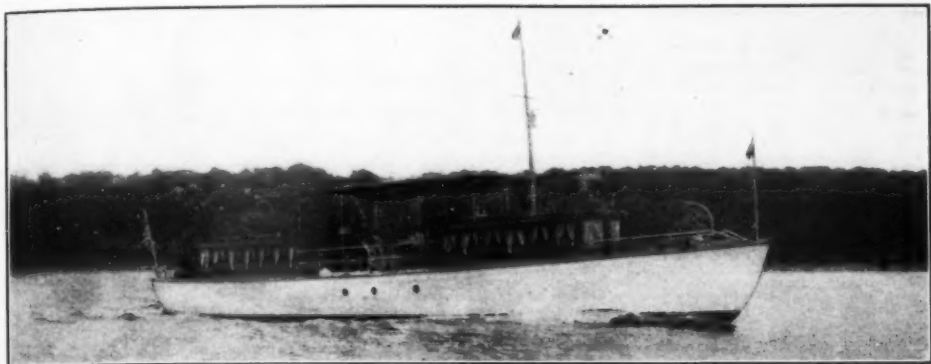
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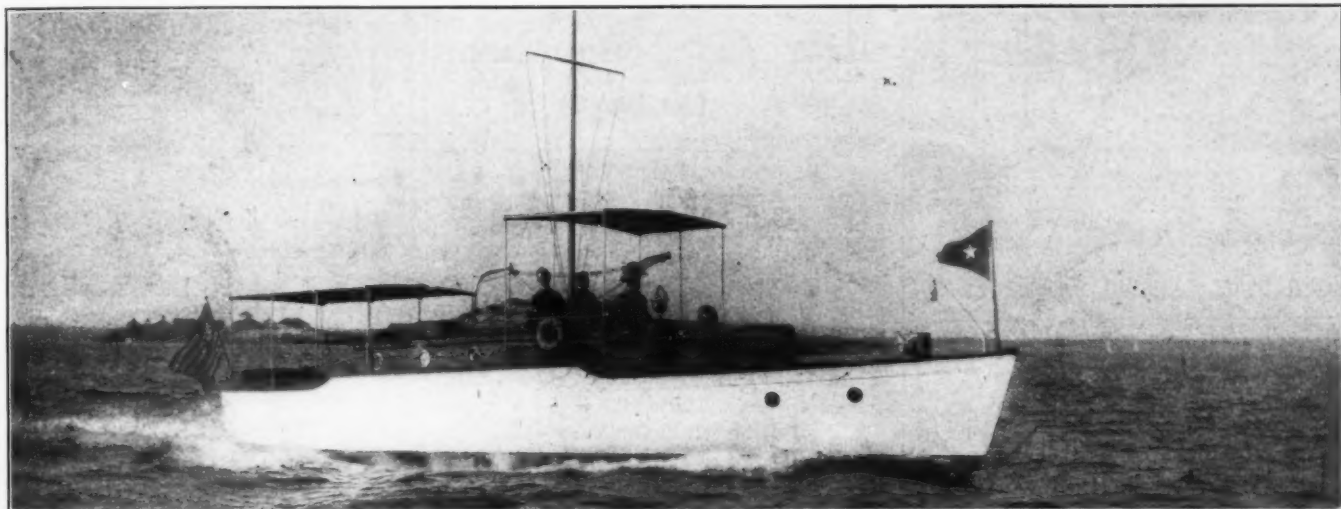
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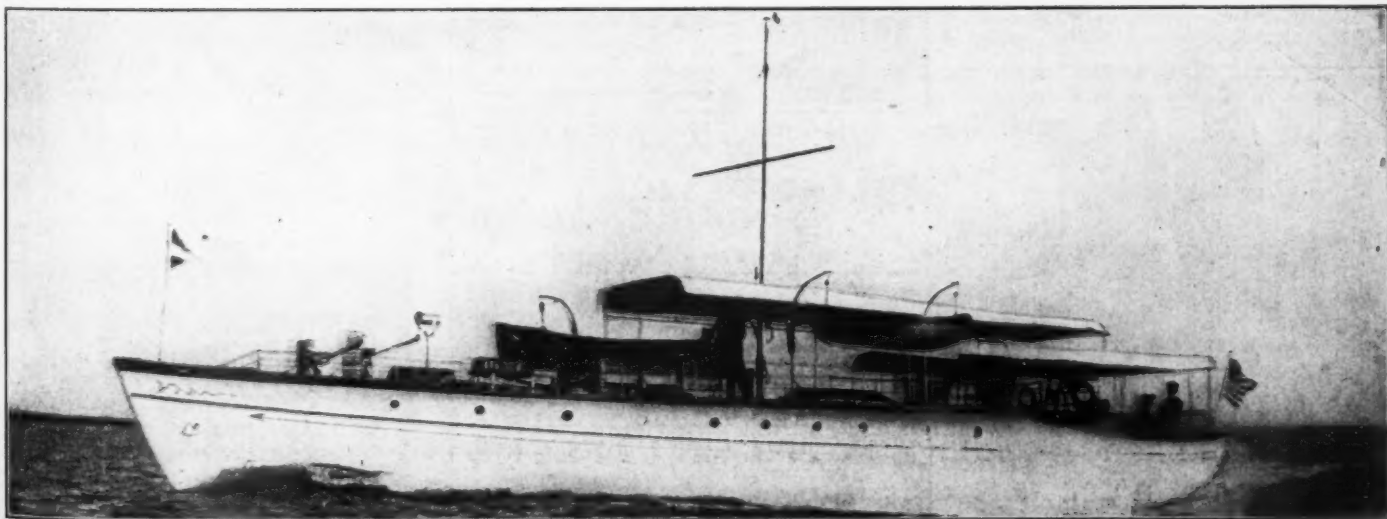
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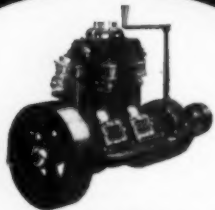
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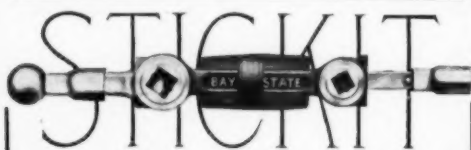
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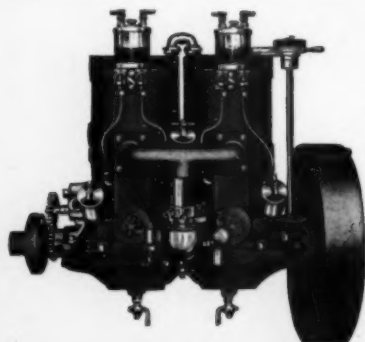
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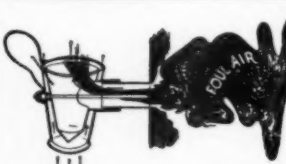


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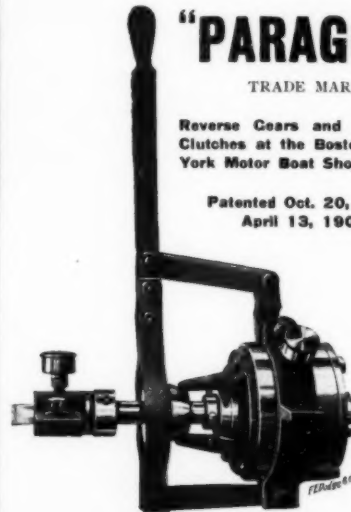
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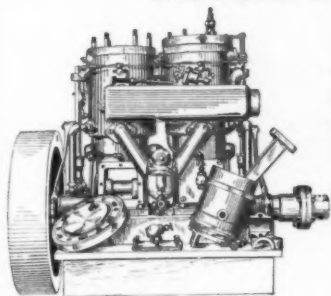
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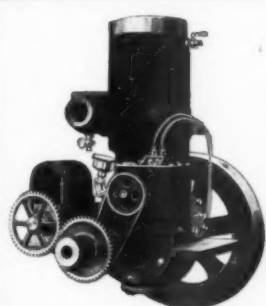
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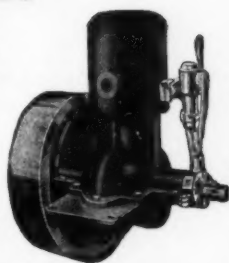
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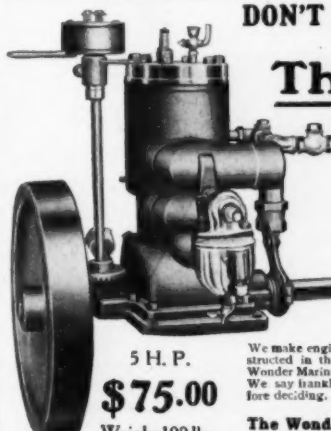
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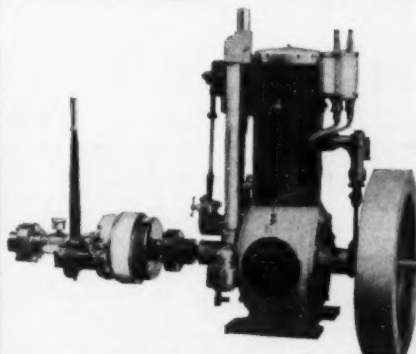
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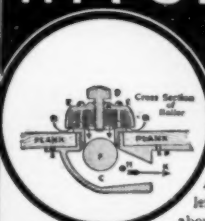
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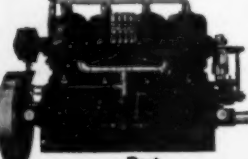
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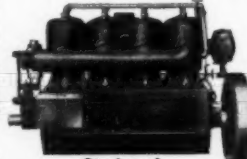
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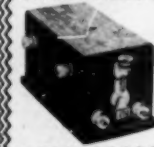
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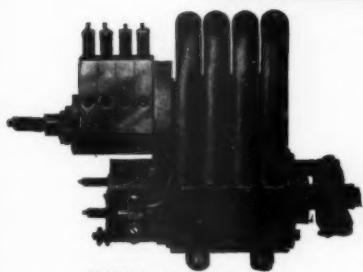
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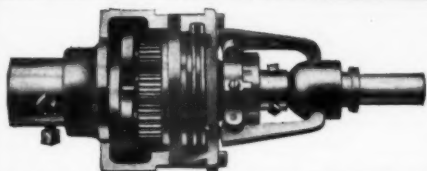
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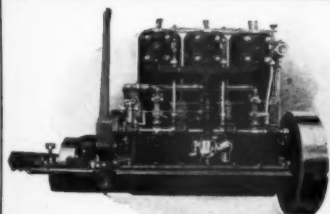
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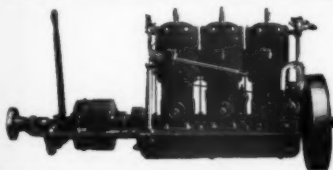
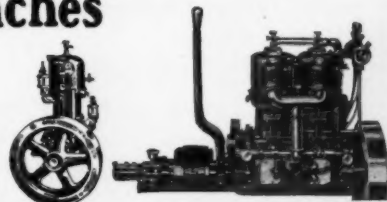
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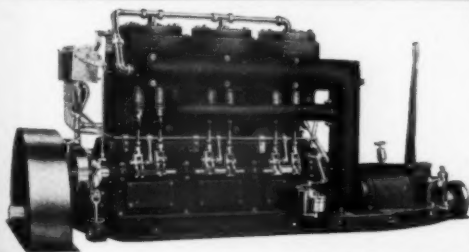
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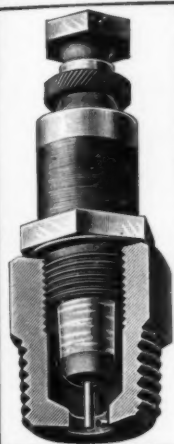
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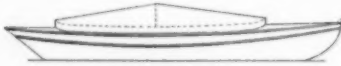
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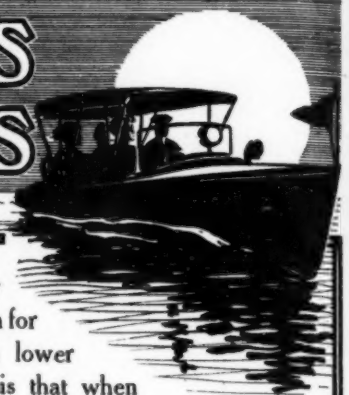
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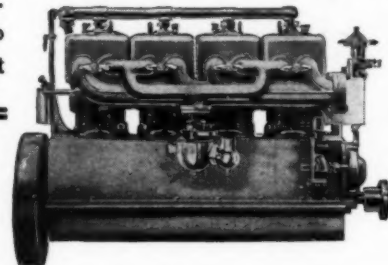
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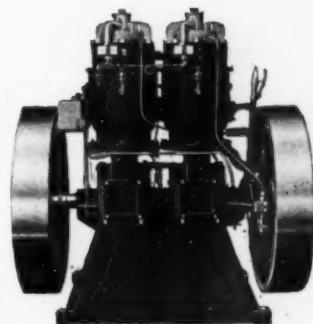
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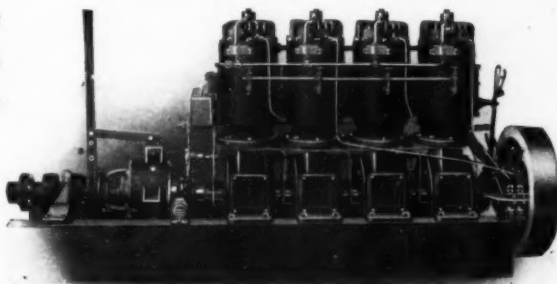
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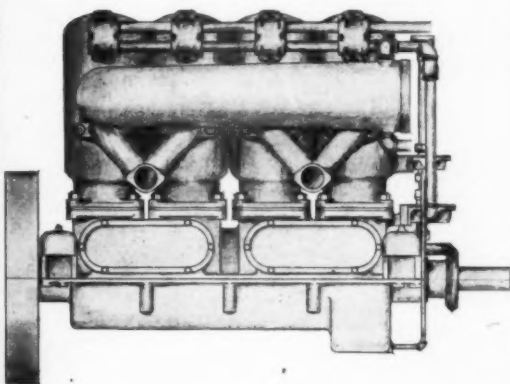
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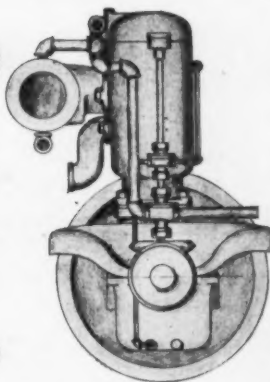
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Unless you investigate our claims, you will never know what we can do.

Let us figure on your plans or let us submit plans and specifications.

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OSHKOSH, WIS.

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1910



Our new 500 page 1910 Marine Supply Catalog is about ready—Larger, more complete and more interesting than ever before. It will contain not only the latest ideas in up-to-date Marine Equipment, but also valuable and interesting matter in reference to the care and handling of Marine Engines and of Sailboats, written by men who are recognized authorities. Let us have your application as early as possible with 18 cents in stamps to cover postage, which will be refunded on first order.

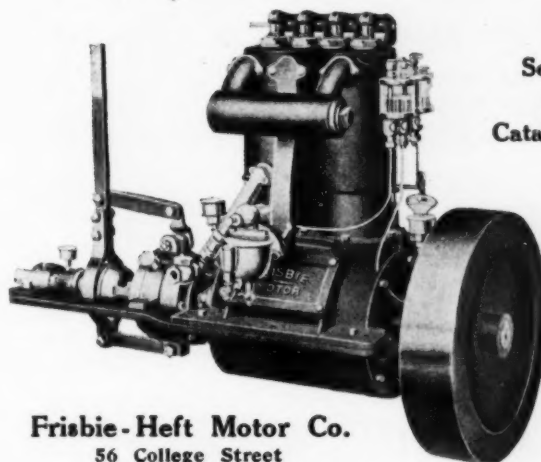
GEO. B. CARPENTER & CO.

200-208 South Water Street, Chicago, Illinois

Frisbie Motors

4 cycle 3-60 H. P. 1-6 cylinders
"SIMPLEST OF ALL"

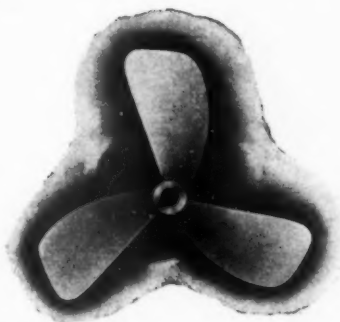
Efficiency, Dependability, and Low
Cost of Maintenance Developed to
the Utmost. Ideal Power Plants
— for Business or Pleasure —



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Frisbie-Hest Motor Co.56 College Street
Middletown, Conn.

Boston Agents: American Marine Eng. Co., 27 Haverhill St.

THE BRYANT PROPELLERE
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Y**REASONS:**

Why our propeller will increase the speed of your launch over any other wheel made.

Our wheel is true pitch $\frac{3}{4}$ the length of blade, being differential at hub overcomes all agitation at that point. This design of wheel gives you a shearing cut from Hub to Periphery, thereby allowing the wheel to work full length of blade, and discharging the water in a tapered volume aft, gives you all the efficiency minus a small per cent. of slip, which can only be procured by a wheel of our design. The peculiar design of a wheel of this kind requires a metal that will hold its shape, and we have a metal as "strong as steel."

Money refunded if we do not increase the speed of your launch.

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FRONTIER ENGINEERING COMPANY

836 Fort Street, West :: Detroit, Mich.

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**PERFECTED
IGNITION**
FOR THE
MOTOR-BOAT ENGINE

**DOW SPARK COILS**

Most Intense Spark generated in Coil used for Ignition purposes. Economical Condenser. Small Current Consumption. Fastest Vibrator.

Each Unit instantly detachable without disturbing other parts of coil.

DOW PERFECTED MAGNETO. The only High Tension Magneto made that is sold on

THIRTY DAYS' TRIAL

The Dow Perfect Magneto generates an alternating current, furnishing a constant, positive, efficient, high tension arc flame spark. Greater Fuel Efficiency. More Power to the Motor. Clean Cylinders. Complete Combustion of the mixture. Write for details, explanation of ignition difficulties and their remedies.

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IGNITION CABLE



Solves the wiring problem on any motor boat so that it STAYS solved

THESE ARE THE REASONS WHY:

1. **Highest Grade Materials** that must meet electrical, mechanical and chemical specifications.
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Solid braided cord with a wire cable centre. Made of extra quality stock, with smooth braid, thus avoiding the abrasion which destroys ordinary rough cord so quickly. Does not stretch, and is flexible and durable.

Furnished regularly in mahogany colored cotton, with a bronze wire centre. We also carry cord with a galvanized wire centre, and can furnish linen or Italian hemp cord if required.

We manufacture extra quality solid braid cord in all sizes and colors, and for all purposes.

Send for samples and catalogue.

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UPSON-WALTON QUALITY

Everything in the Marine Hardware and Supply Line for Launches, Yachts and Motor Boats.

Catalogue with price list sent on request.

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CLEVELAND, OHIO



What do you Want for your Boat ?

We have it no matter what it is—Marine Hardware and Supplies of every kind but the bad kind.

Our Catalogue Number Four is now ready with some high quality, low-price surprises in store for you.

SEND FOR CATALOGUE TO-DAY.---NOW

You can never know what remarkable Boat Supply and Hardware opportunities we have unless you send for our Catalogue.

CHARLES KAUFMANN, Manufacturer
OSHKOSH, WIS.

A New 35x9 Foot Truscott Cruiser



A 35 x 9 foot roomy and seaworthy cruiser, with many features that will appeal to the experienced. Members of our firm have tried out this craft in actual service,—a total of six weeks' cruising. Nothing about it that is experimental.

The 9 foot width insures a roomy boat, therefore, a comfortable one. There are two sleeping compartments separated by a toilet room, the latter being accessible from either sleeping compartment without disturbing the occupants of the other. Exceptional locker and wardrobe space is provided as well as a convenient arrangement of galley and folding table.

The cockpit has a wide lockered thwart seat with high back and space for four or five rattan chairs.

The motor installation consists of a four-cylinder four-cycle Truscott 21 H. P. motor, with dual high-tension magneto ignition, mechanical oiler, etc., an ideal power for a cruiser. The control of boat and motor is in the hands of one man. Salt water equipment throughout. Mahogany and white enamel finish.

THE PRICE is exceptionally low, based on the construction of no less than ten exactly alike for 1910 delivery. Better look into this,—it offers a big value.

Our general catalogue A illustrates and describes our entire line, except above craft. Ask for special literature if interested in it.

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Box 8, St. Joseph, Mich.

Branches with stock in New York, Boston and Chicago

GEISZLER

NON-SULPHATING
STORAGE BATTERY



Size 66
6 Volts, 60 Amperes **Price \$20**

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We guarantee Geiszler Batteries against deterioration when standing idle, whether charged or discharged. Any Geiszler battery which fails to operate to the user's satisfaction may be returned to us at any time within twelve months from the date of sale, and the purchase price will be refunded.

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8" "HEAVY DUTY"

Here is a "Heavy Duty" engine that from start to finish is designed for WORK. Not a pleasure engine but a SERVICE engine that can be operated on tugs, ferries, fisher boats, houseboats or installed anywhere that a commercial engine is required.

It's the kind of engine that likes hard work and plenty of it. You can work it twenty-four hours steady running—and it will be ready for more.

Glance at the illustration and you see that it is a strongly built machine—simple, accessible, neat in design—lots of cooling capacity; powerful direct-acting pump;

large hand-hole plates to crankcase; extra long, heavily babbitted bearings; Schebler carburetor. Every point spells S-E-R-V-I-C-E.

8H \$135 WITH "MAKE-AND-BREAK" IGNITION
8P \$125 WITH "JUMP SPARK" IGNITION

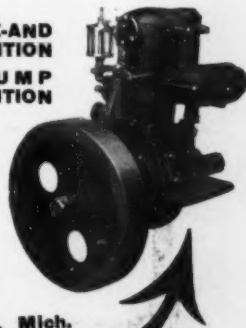
of our own special design; the only one that permits reversing from the spark and allows the engine to run in either direction without changing the igniter

* READY TO INSTALL *

If you're interested send for the fine new Catalog. Shows all sizes 2 to 25 Horse-power, one to four cylinders

THE GAILLE PERFECTION MOTOR CO.

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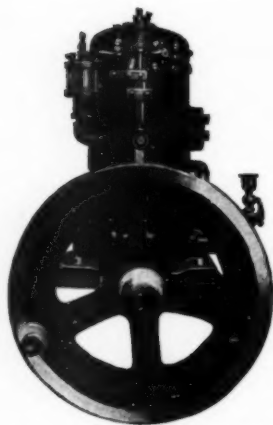
THE "KENNEBEC"

Sturdy Enough for the Fisherman

The fisherman, who goes out in any and all kinds of weather, day and night,—winter and summer,—puts his engine to the severest test possible.

His very livelihood depends upon the reliability of his motor, and he **MUST** have an engine upon which he can depend at all times and seasons, and under all conditions.

Do you want a better recommendation than this for the engine for your Motor Boat?



Handsome Enough for the Finest Pleasure Boat

Remember, Mr. Boat-Owner, that while you do want an engine upon which you can depend, and which will stand up under all possible hard knocks, you do not want a rough looking, uncouth mass of metal to put in that handsome new boat of yours, and just because the KENNEBEC stands hard usage and exacting conditions, do not fancy it is a "rough jewel." It runs more smoothly and is the most completely equipped motor that you have ever seen, splendidly finished and

in any size exceeds its rated horse-power from thirty to forty per cent.

Ask the Fishermen what they think of the "KENNEBEC" ENGINE

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Manufactured by **TORREY ROLLER BUSHING WORKS, BATH, MAINE**

NEW YORK AGENTS:

THOS. I. SIMPSON & CO., 68 South St.



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Mullins' Steel Boats for 1910 are the greatest values ever offered in motor boats. They give you not only *the most speed for the money*, but also a degree of safety and dependability which is not approached in any other line of boats, at any price. They stay on top, and they stay ahead of all other boats of equal horse-power. Hulls are pressed steel, with air chambers like a life boat—absolutely guaranteed not to sink, burn, warp, crack, dry out or open at the seam.

Engine is the new Mullins' Two-Cycle—absolutely guaranteed not to backfire, stutter or stop on low speed. Repeated competitive tests by the U. S. Government and by many individual investigations, have conclusively demonstrated that the Mullins is the only two-cycle engine that will not stall when throttled down on a rich mixture and low compression.

The patented cellular by-pass quenches backfires *every time*—and it cannot burn out or blow out as screens do.

Other notable Mullins features: One Man Control, Rear Starting Device, Outside Gasoline Intake, Silent Underwater Exhaust. These and many other points of Mullins Superiority are all fully described in literature which will be sent to you on request.

Buy a Mullins and get "A New Boat Every Year for the price of a Coat of Paint."

Write for literature regarding Motor Boats, Launches, Row Boats, Hunting and Fishing Boats and Marine Engines.

THE W. H. MULLINS COMPANY
400 Franklin St., Salem, Ohio
The Largest Boat Builders in the World

Only One Motor Boatman in Every 200 Can Have This Great Engine

¶ 200,000 people in the United States own power craft, or have announced their intention to buy. ¶ Of these, 1,000—or only one in every 200—have the mighty Ralaco Engines. ¶ Yet the entire output of Ralaco Engines is constantly taken by motor boatmen who engage in the *larger* pleasures of motor boating—men who run their craft to the Bermudas and back—who do not hesitate to take long river, lake and sea voyages impossible to ordinary engines.

Whether you want to take such a voyage or not, it is a satisfaction to have an engine *capable* of such service. This is the engine which drove the big cruiser Nomad II, Toledo to New York and back, without need of the slightest adjustment. The engine ran continuously for 6 1-2 days—24 hours each—never missing an explosion, with no attention except the replenishing of the fuel and oil supplies.

Ask owners of Ralaco Engines. They will tell you that their Ralaco is equal to performances as far beyond the ordinary as those we cite.

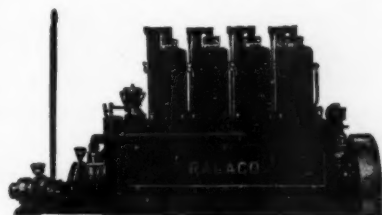
THE S. M. JONES COMPANY, 112 Linden St., TOLEDO, OHIO
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Send for the Ralaco Booklet

It will tell you all about these splendid 4-cycle engines—from 10 to 50 h. p.—ranging in price from \$400 to \$3,000.

A Ralaco is an investment. You can get your valuation out of it after several seasons' use—and you can always find purchasers. Our engine is our best salesman.



Ask The Man Who Owns One



"MASCOT"

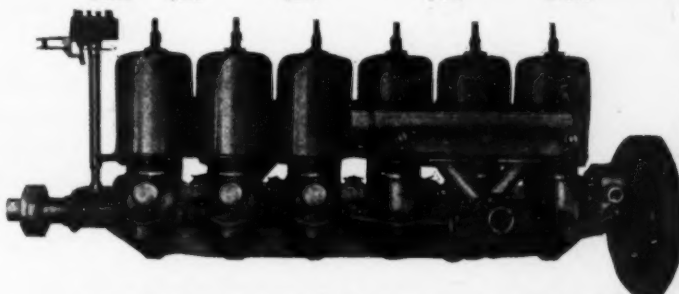
Owned by E. Corsepius, Fort Madison, Iowa, equipped with 6 Cylinder Pierce-Budd Co. engine—speed much over 30 miles per hour.

These are some of the owners—E. Corsepius, Fort Madison, Iowa, Fred B. Smith, Terre Haute, Ind.; Capt. Wm. Rattray, Marine City, Mich.; A. Arnold, Jr., Bay City, Mich.; Minn. Boat and Power Co., Stillwater, Minn.; Dr. O. B. Monosmith, Lorain, O.; S. P. Pankost, Sacramento, Cal., and many others.

The following boats all over 30 miles per hour are equipped with our 6 cylinder Engines; "Masco", "Coyote", "102", "Teddy II", "Evangeline," and another just finished before close of navigation which made 33 miles per hour.

1910 TYPES

	4 to 6 H. P.	12 to 15 H. P.	18 to 25 H. P.	40 to 60 H. P.
	1	2	3	6 Cylinders
Weights	116 lbs	170 lbs	217 lbs	390 lbs
Price	\$155	\$295	\$450	\$1072



Six cylinder type Aluminum Base and Sub-Base Exhaust and Air Pipes

Strong—Simple—Durable. Made from best material attainable—by motor experts.

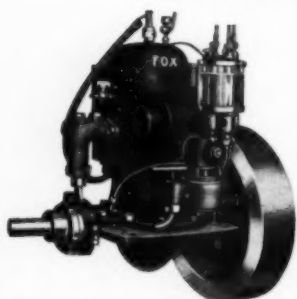
Best equipped Engine in the world.
Send for new 1910 catalog.

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1000 Fox Motors at Introductory Prices—

The Greatest Values Ever Offered in High Grade Motors under a Money Back Guarantee

A BARGAIN FOR YOU: ADVERTISING FOR US



In order to start the sale of Fox Motors in new territory we offer until May 1, 1910

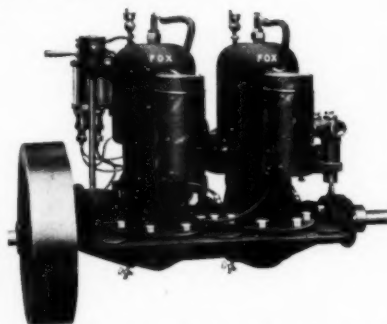
\$55.00 price on 3 1/2 H.P. single cylinder Fox Motors and on 7 H.P. double cylinder Fox Motors \$115.00 each

FOX MOTORS

3 1/2 H.P. Complete Engine Outfit \$55.00
With Fresh Water Boat Fittings 57.50
With Salt " " 62.50

Hold the World's Record For Endurance

Won by Br'er Fox II, Cincinnati to New Orleans, 1554 miles, at an average speed of 29.08 miles per hour



7 H.P. Complete Engine Outfit - - - \$115.00
With Fresh Water Boat Fittings - - 120.00
With Salt " " " 127.50

Remember we are behind this offer with our *money back guarantee* and stake our reputation on the efficiency and real value of these motors.

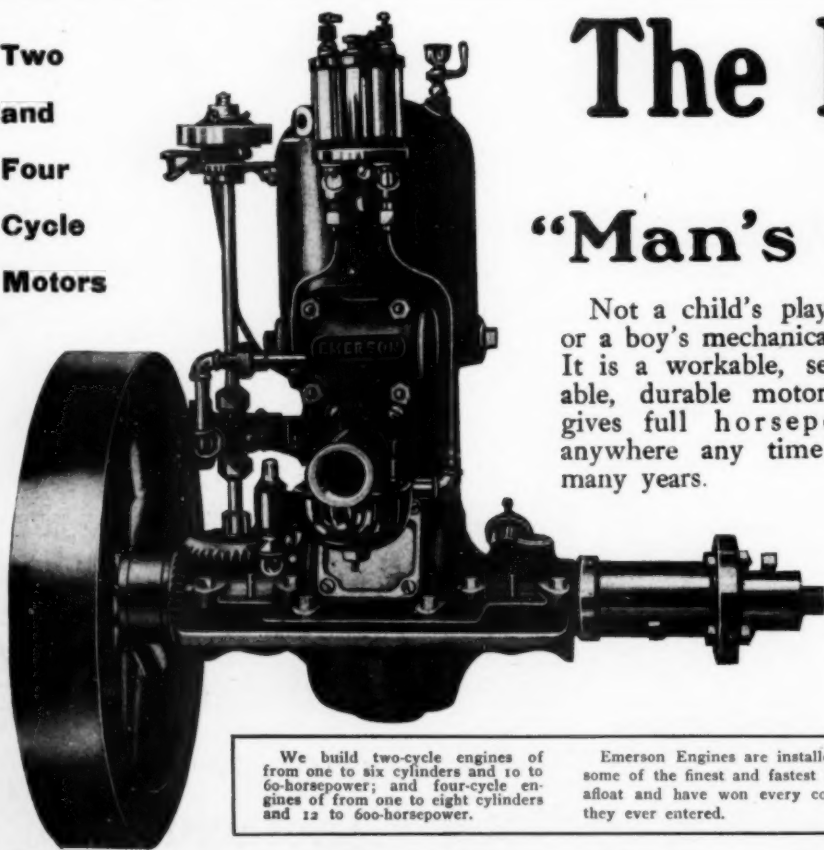
Remember we make all sizes of motors, 3 1/2 to 80 H.P., one to eight cylinders, and all Fox Motors are *sold subject to 30 days' trial*, in your own boat.

Remember we will exhibit at the Boston, New York and Chicago Motor Boat Shows, but we advise you, to insure prompt delivery, to order now. Name the size you want. *Cut out this ad. enclose \$10.00 and we will reserve a motor for you.*

WRITE TODAY FOR CATALOG AND "LOG OF BR'ER FOX II"

THE DEAN MFG. CO. 262 Front Street "South Cincinnati" NEWPORT, KY.

Two
and
Four
Cycle
Motors



We build two-cycle engines of from one to six cylinders and 10 to 60-horsepower; and four-cycle engines of from one to eight cylinders and 12 to 600-horsepower.

Emerson Engines are installed in some of the finest and fastest boats afloat and have won every contest they ever entered.

The Emerson is a "Man's Size" Motor

Not a child's plaything or a boy's mechanical toy. It is a workable, serviceable, durable motor that gives full horsepower anywhere any time—for many years.

With every *Emerson Engine* goes our five year guarantee. *Emerson Engines* installed 10 years ago and run continuously since then, are to-day as good as new—and have not had anything more done to them than a few adjustments.

Of course, it is quite possible for other engine builders to make as good a motor in finish, workmanship and material as the *Emerson*—but they don't—and there is not a motor anywhere nearly approaching it in design.

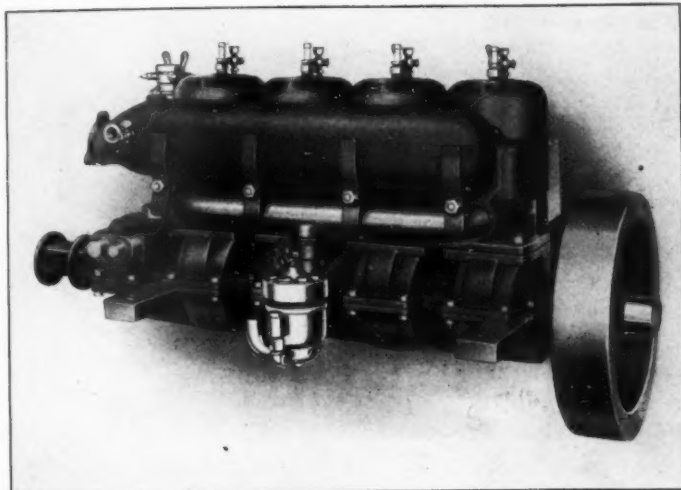
Write for our profusely illustrated, descriptive, price catalogue to-day—now.

Emerson Engine Co., Alexandria, Va.

Roberts Motors Win Again

After the most thorough tests by expert mechanical engineers, the W. H. Mullins Co. (The World's Largest Boat Builders), recently placed an order for 2,000 specially designed Roberts Motors. This is the largest order ever placed for marine engines and is convincing evidence of the superiority of Roberts Motors.

ROBERTS 1910 MODELS ARE THE PERFECTION OF SIMPLICITY



The large ports, which have proved such a success on 1909 Model P will be used on all 1910 models—the new noiseless carburetor, with but one adjustment (the gasoline) is a great improvement. Gear-driven mechanical oilers will be supplied with all motors from 10 H. P. up, also gear pump—readily accessible and easy to remove for packing or cleaning without disturbing the piping.

The Roberts is the only two-cycle engine made that is absolutely guaranteed against backfiring or base explosions. It is the lightest and most efficient engine built. Every part is so accurately adjusted that it starts on the first turn of the crank, and will not stall at any speed. The Roberts gives greater power and more speed than any other motor of the same H. P. made.

WRITE TO-DAY FOR BOOK OF TESTIMONIALS AND CATALOG which fully describes our 11 unequalled models, from 1½ to 60 H. P. and their many new improvements.

THE ROBERTS MOTOR COMPANY
1501 Columbus Ave., SANDUSKY, O., U. S. A.

"SPEEDWAY"

means marine gasoline engine efficiency. A strictly high-class up-to-date all around motor for cruising, speed or commercial boats, four cycle type, 8 to 150 H. P. in stock. Hundreds of them in successful operation in all parts of the world.

GAS ENGINE & POWER CO.

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CHARLES L. SEABURY & CO.
CONSOLIDATED

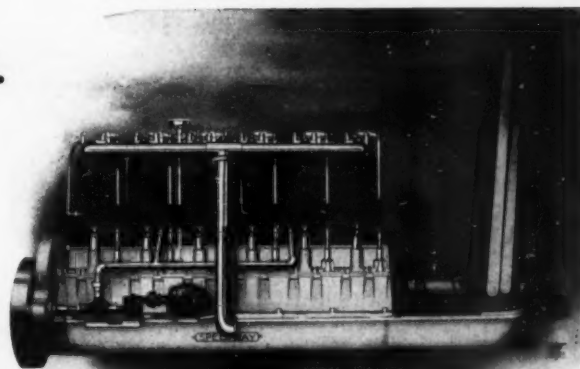
Morris Heights, New York City, New York

*Designers and Constructors of High Class
Craft of All Sizes and Styles for Pleas-
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**"Seabury" Water Tube Boiler and
Marine Engines**

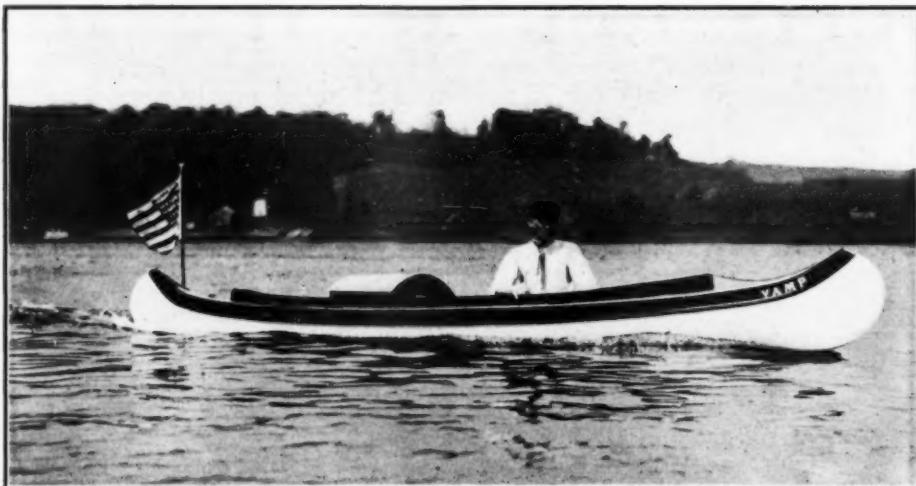
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Send 10 Cents for New Catalogue



When you buy a motor for that boat---Be it a Canoe or Speed boat---

Canoes
Equipped
with
Refined
Motors
Always
Win!
WHY?



You
want the
best your
money
will buy!

There Are Reasons—

LIGHT WEIGHT---

Refined 3 H. P. Motors weigh 60 pounds and Refined 2-cylinder, 6 H. P. Motors weigh 110 pounds (weight is not necessary to power). We could build heavy motors at much less cost, but the---

MATERIALS---

used in Refined Motors are **Refined**. There is no superfluous weight. The best materials cost more---therefore you get more for your money.

SIMPLICITY---

The designers of Refined Motors have kept this word and idea constantly in mind---and as a result Refined Motors are the **acme of simplicity**. There are but four movable parts (all thoroughly oiled).

No valves, cams or springs (**you know** these parts give trouble).

COMPLETE EQUIPMENT---

is furnished with each motor---and each article is of the same high grade as the motor itself.

PRICES---

are based on our facilities for building large numbers---5,000 will be turned out in 1910---more than 2,500 are sold---

WE GUARANTEE

every one---against defective material and workmanship---and our guarantee means something---

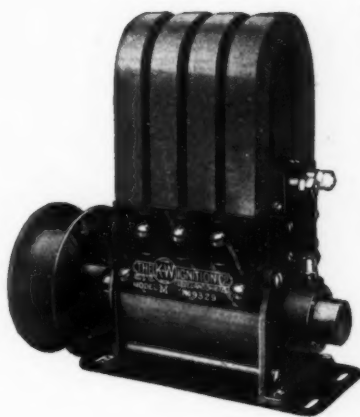
WRITE TO-DAY

for catalog---and story "A Summer Trip Through Florida Waterways," sent free on request---
Tell us what style boat **you have** or what you **intend** to have---

Thrall Motor Co., 2-38 Twenty-first Street, Detroit, Mich.

OUR ONLY RIVAL

MODEL "M"
The Motor Boat
Special



HE is our only rival, but as we have no intention of continuing business in another sphere the fact that the spark from the K-W Magneto is "Hotter than The D——," need not cause him any uneasiness.

Read Our Guarantee & Certificate of Insurance



a small reproduction of which is given below and see what YOU think of a Magneto which carries with it such a guarantee.

There is no if or but about the K-W Magneto. Its action is as positive and regular as the ticks of a clock.

The man, who at this day still persists in using dry cells or storage battery for his ignition and acetylene for lights, should go back to the tallow candle and the mule—he is at least that much behind the times.

Dry cells and storage batteries mean constant expense, poor ignition and general dissatisfaction, while the K-W Magneto means doing away with all expense. A weaker mixture can be used and more power gotten from it.

than you ever got before. The K-W Magneto will run the engine evenly, smoothly and without missing AT ALL SPEEDS

It will take you there and bring you back again. You don't have to wonder if your batteries are playing out, for the power and size of the electrical spark from the K-W Magneto will NEVER DETERIORATE.

Why don't you start the year right this time and prepare yourself for a season's pleasure with ALL trouble eliminated?

Write us for a copy of the above certificate of guarantee.

Remember, K-W Magnetos are sold on a 30-days trial with a "Money-Back" Understanding. We don't demand explanations. Your say so is sufficient.

Write us to-day. Start now preparing for the coming season. It costs nothing to investigate.

The K-W SPARK COIL

The K-W Spark Coil will stand 110 volts just as safely as it will stand six, and that is why a Certificate of Guarantee is given with every K-W Coil that covers the Coil FOREVER—and if you expect to have use for one after, we will add a postscript to that.

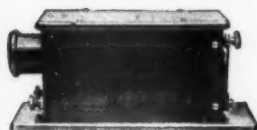
Don't Take Chances When You Can Protect Yourself FOREVER by Installing a K-W Coil—A Thirty-Day Trial Besides

We know that the windings of other coils contain all the way from one teaspoonful to one tablespoonful of water. The manufacturer did not put it there, and he doesn't want it there, but it is to be found in the silk insulation on the fine copper wire and in the paper insulation between the layers of wire. If this water and moisture remains, the coil will always cause more or less trouble, short circuit and break down.

Every minute particle of this moisture is REMOVED FROM THE K-W COIL and this is how it is accomplished: After winding, the K-W Coil is placed on end in a large steel steam-jacketed vat and sealed absolutely airtight. This vat is heated to 250 degrees and kept at this temperature for six hours. Now as water boils at 212 degrees it is not hard to figure out what is taking place in the vat—to the water and moisture in the windings. At the end of six hours we create a perfect vacuum in the vat, thus extracting every particle of water, moisture, vapor and air. This leaves the windings absolutely dry—in fact, so dry that the most severe scientific analysis fails to show any trace of moisture left, and the windings are 10% or more lighter than before treatment. ¶ At



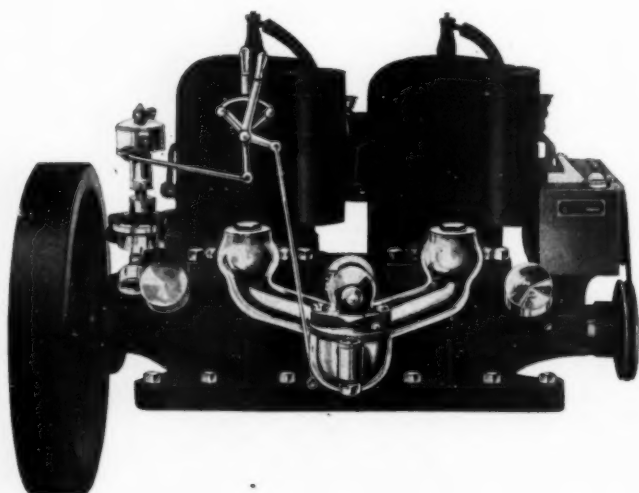
K-W Four-Cyl. Dash Coil
Price \$30.00



Plain Box Marine Coils \$6.00
Double Cylinder \$12.00

this point a valve is opened from another vat connected with it and the "dielectric" solution rushes in from the bottom, impregnating every remote part of each winding—under a pressure of 125 lbs. to the square inch. ¶ This pressure is maintained for three hours when the windings are removed and no electrical strain will break them down. ¶ You can readily see we are safe in making our guarantee the strongest possible and selling our goods with a 30-day FREE TRIAL, MONEY BACK UNDERSTANDING. ¶ Do you want such a coil as this for your engine, or are you going to be content with a weak, leaky, uncertain makeshift which will give a poor spark at best, continually cause trouble and finally land in the rubbish heap?





The 12 H. P. Gray Motor is a race winner—and a giver of all-round satisfaction.

It develops from 12 to 16 H. P.

With *complete* boat outfit it sells from \$198 to \$236, depending upon equipment.

It has *Gray Quality* and *Gray Power* in every heart throb.

For pleasure, racing or business it has *earned* its reputation.

When you buy a Gray Motor you get *all* the power we promise—and it's *power* you buy.

You cannot buy a better motor—regardless of price. You cannot get a better guaranty. You are *safe* when you buy a Gray Motor.



The 6 H. P. Gray Motor won 37 first prizes last summer that we know of—and no doubt many more.

It hauled thousands of tons of fish, farm produce, freight, etc.

It has made—without repairs of any kind—cruises of thousands of miles.

It has carried thousands of happy people on merry boating parties.

It develops from 6 to 9 H. P., and sells with complete outfit from \$94 to \$118.

There are more of them sold than any other 6 H. P. motor in the world.

It has the *best* material and the *finest* workmanship that money can buy.

Gray Motors are made in the largest and most up-to-date plant in the world devoted exclusively to the manufacture of two-cycle motors.

Built in 1, 2 and 3 cylinders, 3 to 36 H. P.

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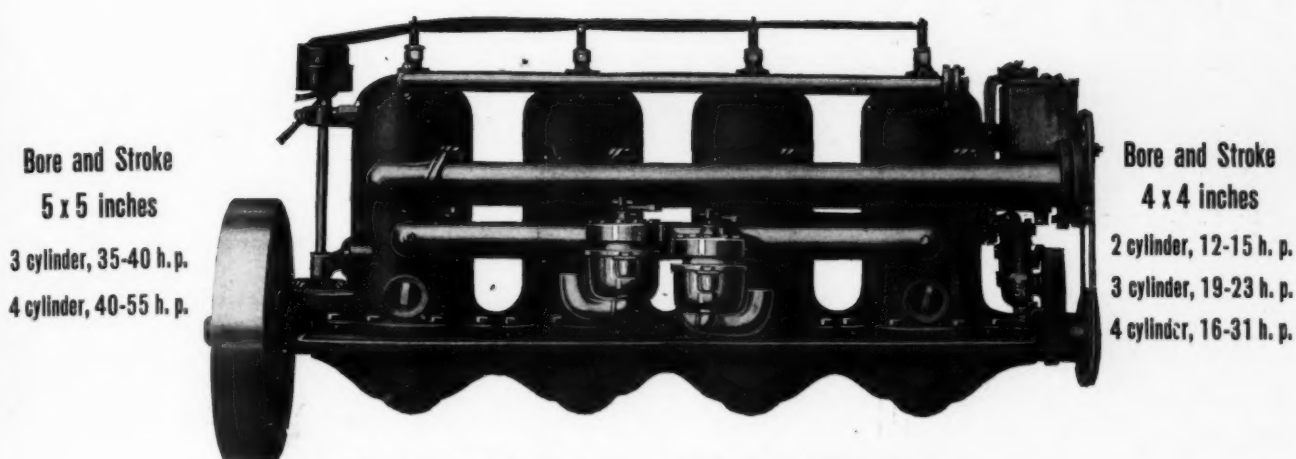


GRAY MOTOR CO. 931 LARNED STREET Detroit, Mich.



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**More than speed and power--strength
and durability for the hardest service**



Bore and Stroke

5 x 5 inches

3 cylinder, 35-40 h. p.

4 cylinder, 40-55 h. p.

Bore and Stroke

4 x 4 inches

2 cylinder, 12-15 h. p.

3 cylinder, 19-23 h. p.

4 cylinder, 16-31 h. p.

The four cylinder Extreme High Speed Vim Motor

VIM MOTOR

The most perfect two cycle engine made

It is acknowledged that the new Extreme High Speed Vim is the simplest marine motor in the world.

It is further conceded to be the most powerful engine in the world for bore and stroke dimensions.

This new Vim, incorporating the perfection of the two cycle principle with a development of power not to be had in any other engine of like size, possesses still another cardinal virtue.

This is the virtue of strength and rigidity.

Many engines possess that which—in comparison with this new Vim—may be termed a fair degree of speed and power; but their weight and strength have been

sacrificed to a degree that renders them unfit after a short term of hard service.

In the Vim we have attained the maximum of speed and power, and at the same time retained the strength and stamina and the utter simplicity which are the distinguishing mark of Vim motors.

Thus the extreme High Speed Vim type is not only the engine for speed work, but will remain fine and fit and responsive under three to six times the hard service that other engines, built solely for speed, will stand.

Write for the new catalogue, which describes this wonderful engine, and the other Vim models for speed and heavy duty, in detail.

The Vim Motor Manufacturing Company

440 Market Street, Sandusky, Ohio

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BUFFALO

MARINE ENGINES

AN ENGINE FOR ANY SORT AND SIZE OF BOAT

Says Dr. F. T. Rogers, of Providence, in his recently published prize, power boating story, narrating a 1,400-mile cruise in his 57-foot "Annaweta," driven by a 24 h. p. heavy duty BUFFALO:

"The engine had been thoroughly tried in last year's cruise, a run from Marblehead to Providence in the north-east gale of August 28, which drove the battleship Mississippi into Provincetown, and filled Vineyard Haven with coasters. Three trips through Hell Gate and around the Battery showed it to be handy and reliable.

" * * * I could rely on the engine. * * * The engine did not skip a single stroke. Engine troubles were absolutely nil. I never had a broken part or hot bearing, and I cannot speak too highly of the engine."

To our long list of exposition awards, we have added these—three gold medals at the Alaska-Yukon-Pacific Exposition at Seattle, and three gold medals at the recent international exposition at Milan, Italy.

Don't you think it would be a good idea to write for our catalog?

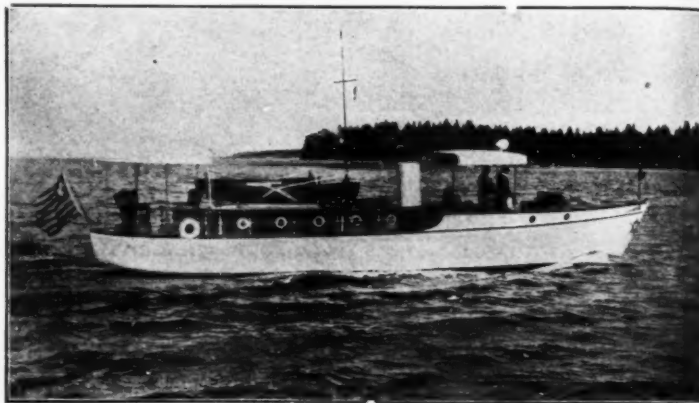
Buffalo Gasoline Motor Co. 1204-16 Niagara St.,
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The WORK, WEAR and WIN Engines

that pursued internal combustion to perfection and took the fly out of the honey of motor boating. BUFFALO QUALITY alone made this possible. BUFFALO QUALITY—the high standard of marine engine creation that others must reach up to—was evolved from one hundred and forty-four months of unflagging, ambition-inspired effort. Besides brains and sincerity of purpose, it cost a lot of money. It was worth it.

REGULAR LAUNCH TYPE	HIGH SPEED TYPE
3, 5, 7½, 10, 15, 20, 30, 40, 65 and 100 H.P.	Four Cylinder 60 H.P. Six Cylinder 90 H.P.
Two, Four and Six Cylinders.	New for 1910 —An improved V-type, 8-cylinder, extremely high power speed engine in concentrated space, and a 4-cylinder, 4¾ x 5 speed engine.
HEAVY DUTY TYPE	
4, 6, 12, 18, 24, 36 and 54 H.P.	
One, Two, Four and Six Cylinders.	

BUFFALO engines are cheap only in the true, long-run sense of fullest efficiency, long years of constant, ever-ready service and absence of repair bills. Don't steer the wrong course of acquiring bitter and costly motor boat experience by means of a "cheap" engine. Eventually you will buy a BUFFALO. Why not now? It would be a stroke of real economy.



DR. F. T. ROGERS' ANNAWETA OF PROVIDENCE.

PYRAMID ALUMINUM

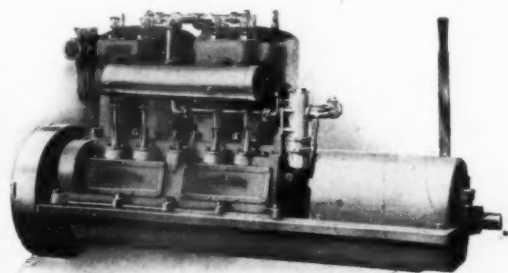
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or any purpose requiring a clean, durable, sanitary floor, will not tarnish, discolor or corrode and is practically indestructible and ever-lasting. Write today for descriptive circular and prices.

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STERLING QUALITY



25-40 H. P. TYPE B STERLING—The Engine

STERLING ENGINE COMPANY
1264 NIAGARA STREET
BUFFALO, N.Y., U.S.A.

Nov. 15th, 1909.

573 Second St., Brooklyn, N.Y.

MR. H. L. EDGE,
136 Liberty St., New York City.

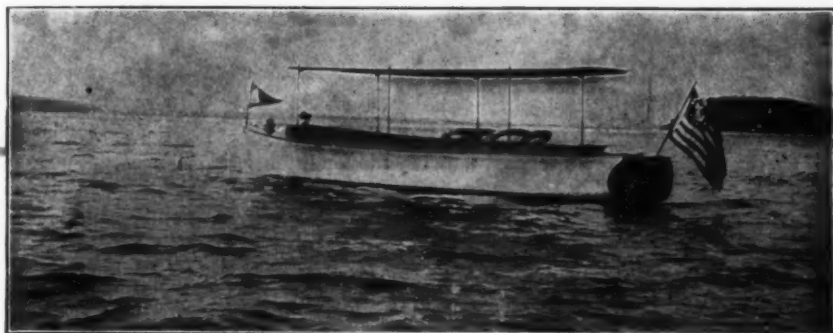
Dear Sir :

The Sterling Engine that I purchased of you last spring gave me perfect satisfaction all summer, at Northport, L. I. My boat, the Iola, is six feet beam by 30½ ft. long. The 25-40 H.P. Sterling gave her a speed better than 14 miles per hour. I have had quite an experience with different kinds of engines, and I must frankly say I do like the Sterling.

It is a pleasing engine to look at, and has a good, clean cut design all around. I am enclosing you a photo of my boat.

Wishing you all success in the sale of this engine, I am,

Yours Truly, (signed) ALBERT CHESEBROUGH.



IOLA—The Boat

Kenyon Life Preserver Pillows and Cushions Have a Greater Sustaining Power Than Standard Life Preservers.

NOT only are the Kenyon Life Preserver Cushions and Pillows the best, the most durable, and most completely waterproof cushions made, but they will, also, in case of emergency, sustain a heavier body in the water for a longer time than the regular standard life preserver.

They contain no cork, but *do* contain a *non-absorbent* filling which makes them as soft as if filled with down.



Kenyon Life Preserver Pillow



Kenyon Life Preserver Cushion

They are made in the popular mission shape, covered with either leather or imitation leather, in tan, green or red.

They will support the heaviest person in the water for an indefinite period of time, and are far more buoyant than any regular life preserver made.

These famous Kenyon Life Preserver Cushions and Pillows are made in one stock size or in any size to order.

Send for illustrated descriptive price catalogue today---NOW.

Kenyon Boat Tops.

are folding tops for motor boats. They can be raised and lowered at will quickly and without inconvenience or damage to the material. They are so simple in construction that a glance at a Kenyon Auto Top instantly shows you how to handle it. They are light, strong, handsome and convenient.



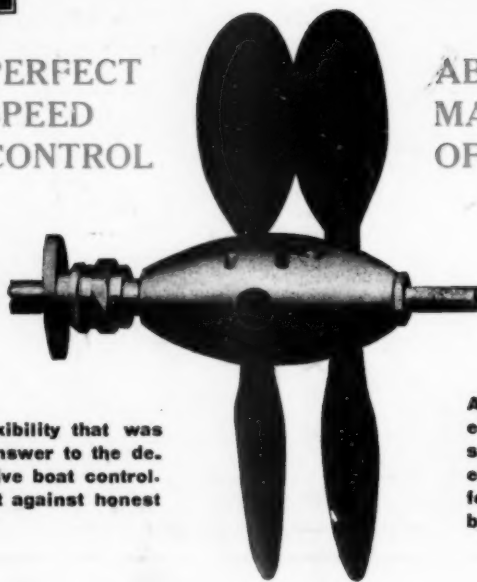
Write for catalogue which describes and illustrates the Kenyon Tops in detail.

The R. L. Kenyon Company
WAUKESHA, WISCONSIN, Dept. K.

ROPER Safety Propeller

PERFECT
SPEED
CONTROL

ABSOLUTE
MASTERY
OF BOAT



Three years ago the Roper Safety Propeller was comparatively unknown. It came on to the market immediately following the failure of other alleged speed controlling and reversing devices to give the flexibility that was needed. It was the scientific answer to the demand for instantaneous and positive boat control. It had a tremendous battle to fight against honest prejudice and skepticism.

Despite the odds against it, despite doubts and outright opposition, the Roper Safety Propeller has triumphantly "Won Out." Now hundreds of these propellers are in use on all types of motor boats and in almost all American waters. They are used by private owners, by professional boatmen, and, more convincing still, by the U. S. Navy. Wherever and under whatever conditions they are used, they are giving perfect satisfaction and are enthusiastically endorsed by their delighted owners.

PERFECT CONTROL vs. "perfect control"

Two years ago the Roper Safety Propeller was advertised to give PERFECT CONTROL to a motor boat. This was a strong claim, interesting to boatmen and—true.

Since then, the advantage of PERFECT CONTROL has been thoroughly recognized. Makers of reverse gears and ordinary reversing propellers have learned its importance and some of them have claimed it for their mechanisms.

BUT the "perfect control" of the reverse gear and ordinary reversing propeller is the same old "perfect control" which existed before the day of the Roper Safety Propeller. It is three lever control with throttle, spark and reversing lever, and it carries with it the liability of engine racing, flooding, stalling, and confusion of mind in emergency.

Roper PERFECT CONTROL is a different proposition. It is in a class by itself. There is but one lever to handle, no adjustment of throttle or spark, and no practical variation in the speed of the motor no matter what evolution the BOAT is put through.

Which appeals to you? That old humbug "perfect control" of the reverse gear and old reversible propeller which has caused so much profanity and real antipathy towards motor boats in general, or the up-to-date Roper Safety Propeller PERFECT CONTROL, which makes motor boating pleasurable, simple and safe? The shadow or the REAL THING?

The testimony of users carries its own conviction. Send for "After the Trial."

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